

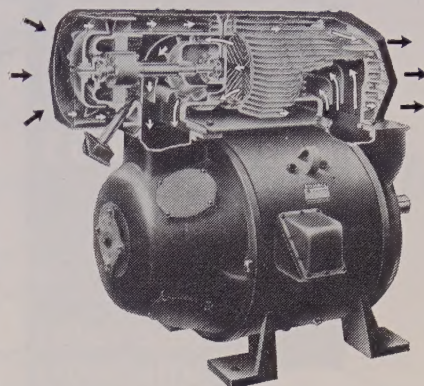
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## for Wider Speed Ranges... Higher Ratings



*Cutaway of Dual-Cooled Type 'T' Heavy Duty D-c. Motor showing counterflow of internal and external cooling air through heat exchanger.*

## RELIANCE *Totally-Enclosed Dual-Cooled* D-C. MOTORS

New Reliance Dual-Cooled Motors provide dependable totally-enclosed, fan-cooled operation over wider speed ranges and higher ratings than were ever before possible . . . and this is accomplished with floor-space savings of up to 30%!

Dual-Cooled Motors are completely enclosed . . . have two separate cooling systems operating independently of the motor speed. One system circulates high-velocity air within the motor, that is cooled in the finned inner duct of the heat exchanger.

This heat is dissipated in the other system by air currents sweeping through the fins of the outer duct.

The Dual-Cooled Motor is especially adaptable to Reliance adjustable-voltage V\*S Drive and is available in ratings from 15 through 150 horsepower. Explosion-proof Dual-Cooled Motors are available through 100 hp., in conformity with Underwriters and Bureau of Mines specifications.

Get further details from the nearest Reliance Sales Office . . . or write for Bulletin C-2201.

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## Specials

Those of you who have been keeping track of and observing faithfully the special weeks will be fascinated to note that this is International Golden Rule Week.

## Annual Issue

Work on the STEEL Yearbook is now well under way. We'll keep you as informed as possible on the progress of this giant issue that's due the first of the year.

We talked to Ed Karpick, associate editor, and he tells us that the technical articles for the issue are going to be complete summaries of conditions in the different fields (15 of them) of metalworking.

We've done some tabulation for you on the status of the book. So far we figure that the typewriter keys have been hit 1,477,394 times just on the technical copy. If this were all set on one line and the line stood on end it would be as tall as 7.3 Empire State buildings stacked on top of each other.

There has also been an extra 743 cups of coffee consumed—a lot even for editors, and an extra 14½-day light bill will be presented to Penton Publishing Co. for the night work so far.

From what we've seen of the plans for the articles and for the rest of the book it will be a STEEL issue for close reading and digesting. It's kept the editors up nights and weekends. Some of them practically live here.

## Silver Quill

Bernard C. Duffy, president, Batten, Barton, Durstine & Osborn Inc., an advertising and public relations house, has been awarded the second annual Silver Quill Award. The award is sponsored by National Business Publications Inc., and is given for "most distinguished services to business and industry through the Business Press." Presentation was made by Benjamin F. Fairless, chairman of the board, United States Steel Corp.

The first award of the Silver Quill was made a year ago. Recipient that time was Paul Wooton, chairman

of the executive committee of the Society of Business Magazine Editors. President of the society is Editor Irwin Such of STEEL.

## More on the Spider

Most of the puzzle solvers will remember the spider and the fly problem we had in the Oct. 6th issue. It brought us a letter from T. A. Feucht of Indianapolis, Ind. He tells about how he had what he thought was the right answer and then found we had another one.

It apparently spurred him into considerable research on the subject. Without going into his calculations we can tell you that he figured four alternate courses for the spider to walk with the limiting distances on each. He (and we) decided that was some smart spider.

## Puzzle Corner

In the issue of Nov. 24 the philanthropist has \$2.20 to split with 28 beggars. First across the line with that were: Ralph Pappenheimer, Specialty Device Co., A. Humbel, Pioneer Machine & Engineering Co., Thomas M. Sagendorph, Penn Metal Co., M. F. Coon, Sharon Steel Corp. and L. D. Rice, Timken Roller Bearing Co.

In his reply M. F. Coon suggests this one: Sam is out on the lake in his boat, fishing. He's 24 miles straight out from the dance hall and the shoreline is straight. His home is 38 miles straight down the beach from the dance hall. Suddenly he decides he has to get home in the shortest possible time—for one reason or another.

He can get 8 mph out of the outboard and by sprinting he can do 10 mph on the shore. How far up the beach from his home should he land? (We think that when he gets home, his wife should straighten him out on being 24 miles from shore in a boat with an outboard.)

*Shradu*

(Metalworking Outlook—Page 57)

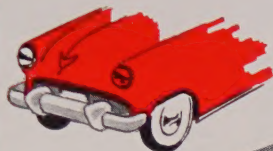


# How-

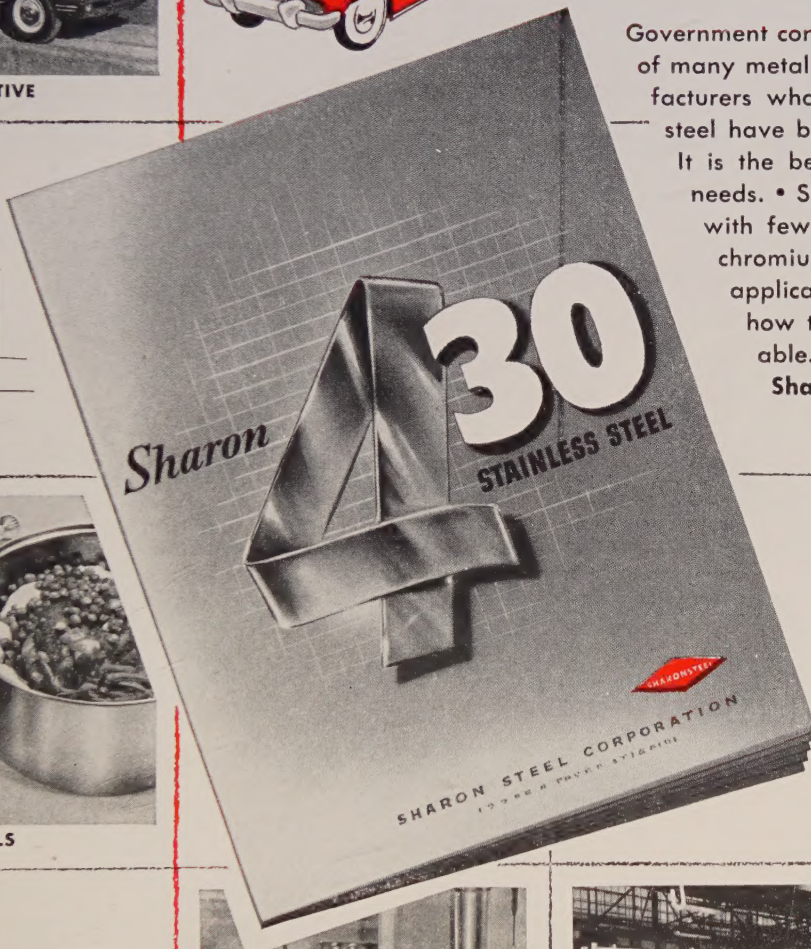
## *facts about 430 Stainless Steel for manufacturers concerned about critical materials*



**AUTOMOTIVE**



Government controls are pinching the raw material supplies of many metal fabricators. However, many of these manufacturers who are familiar with Sharon "430" stainless steel have been able to quickly adapt it to their needs. It is the best available material for many of today's needs. • Sharon "430" is in good supply and available with few restrictions as to end use. It is a straight chromium stainless steel with hundreds of successful applications. A new booklet with instructions on how to fabricate Sharon "430" stainless is available. Get your copy by writing department 81152 Sharon Steel Corporation, Sharon, Pa.



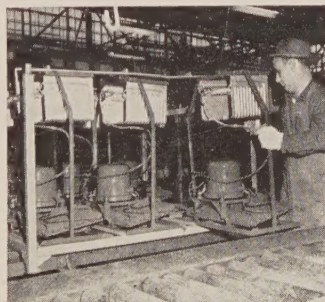
**UTENSILS**



**SPECIAL**



**AGRICULTURAL**



**APPLIANCES**



**ARCHITECTURAL**



*Sharon* **430** *stainless steel*

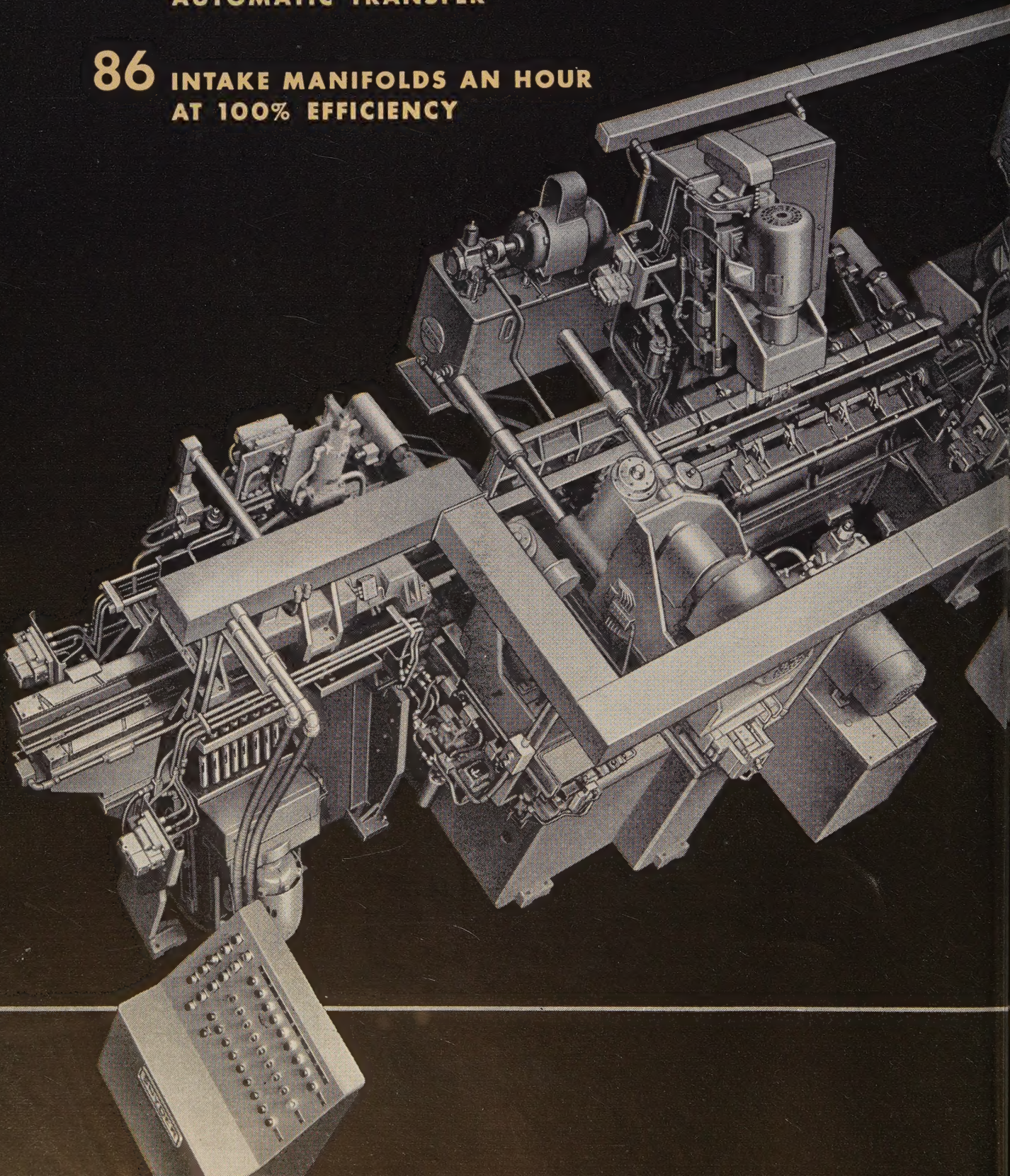
**SHARONSTEEL**



# SNYDER MACHINES CONTROL COSTS

**22** STATION  
AUTOMATIC TRANSFER

**86** INTAKE MANIFOLDS AN HOUR  
AT 100% EFFICIENCY







## **AUTOMATIC OPERATION**

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**SPOTFACES CARBURETOR AND WATER OUTLET PADS**

**AUTOMATIC HYDRAULIC POSITIONING**

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**AUTOMATIC CONTROLS WITH SWITCH-OVER TO MANUAL**

**AUTOMATIC LUBRICATION**

**AUTOMATIC SAFETY INTERLOCKING SYSTEM**

**SKILLED OPERATORS NOT NEEDED**

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**TOOL & ENGINEERING COMPANY**

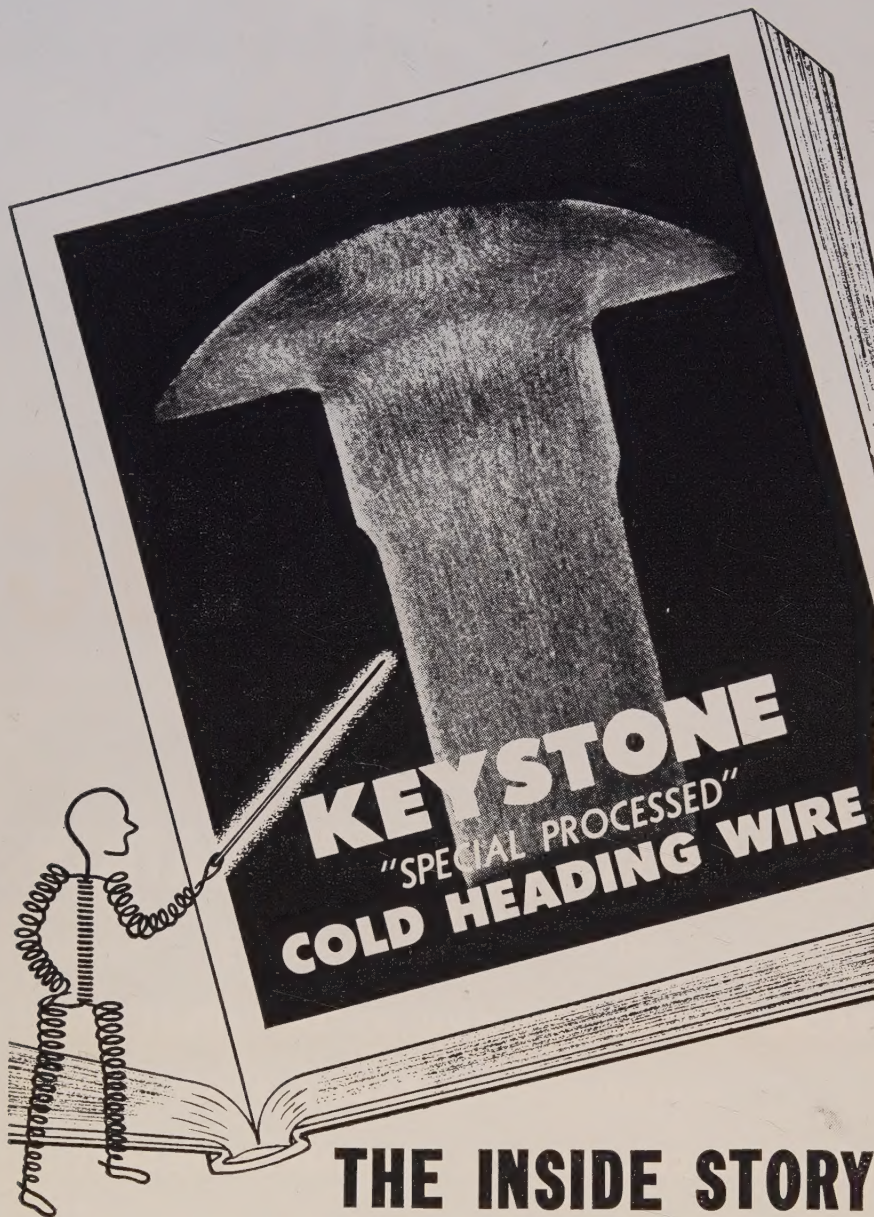
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E. LAFAYETTE**



**DETROIT 7,  
MICHIGAN**

*26 Years of Successful Cooperation with Leading American Industries*





## THE INSIDE STORY

Long continuous fibers through shank and head are the "inside" proof of efficient cold-heading.

The above macrograph shows the uniform strength-giving, grain-flow characteristics in a bolt made from Keystone C1038 Special Processed Cold Heading Wire. Such uniform grain flow assures longer die life, increased production, and a better finished product.

Whatever your industrial wire problems might be, Keystone metallurgical research and testing facilities are available to supply the answers.

**INDUSTRIAL WIRE SPECIALISTS**

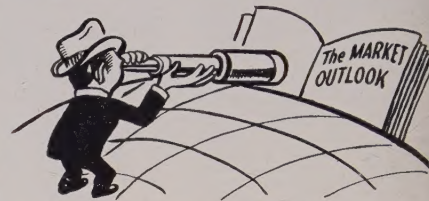
**Keystone Steel & Wire Company**  
PEORIA 7, ILLINOIS



## LETTERS

TO THE EDITORS

### Belgians Pick Market Outlook



We always read with great interest your article "The Market Outlook" which appears in STEEL.

Our correspondents in Belgium have asked if they would be allowed to make copies of the American steel prices which are on the back of the "Market Outlook." They have customers who would be interested in receiving this information.

Robert J. Savoye  
vice president  
Belgian American Mercantile Corp.  
New York

• Your correspondents may reprint these prices if proper credit is given STEEL.—ED.

### Glass Lubricants Soon

Referring to the item "Glass Substitute" (Nov. 10, p. 62) which mentions a glass lubricant for forging steel, we would appreciate your advising us the name of the company which produces that product.

R. E. Ceell  
vice president  
Scaife Co.  
Oakmont, Pa.

... can you advise us as to the firm in Pennsylvania who will process the lubricant as mentioned.

J. Daverio  
Canton Drop Forging & Mfg. Co.  
Canton, O.

• The company involved is still "working out the kinks" on this new type of glass lubricant. They expect to have more complete information available soon, but until that time would prefer to remain anonymous.—ED.

### Solution to Waste Problem

This installation would like to receive tear sheets of your article "Ion Exchange—New Hope for Waste Recovery" (Oct. 20, p. 96).

We anticipate a problem which will require the exact solution which you have presented. Thus, we find this article timely and quite valuable.

G. F. Noyes  
Benicia Arsenal  
Ordnance Corps  
Benicia, Calif.

• They're being sent.—ED.

### Searching for Air Facts

Our firm is presently engaged in a business and market study of the air conditioning industry, with particular emphasis on room air conditioners of

Continued on following page



# FOR SUPERIOR

## Coatings

*Think first of the coatings that last!*

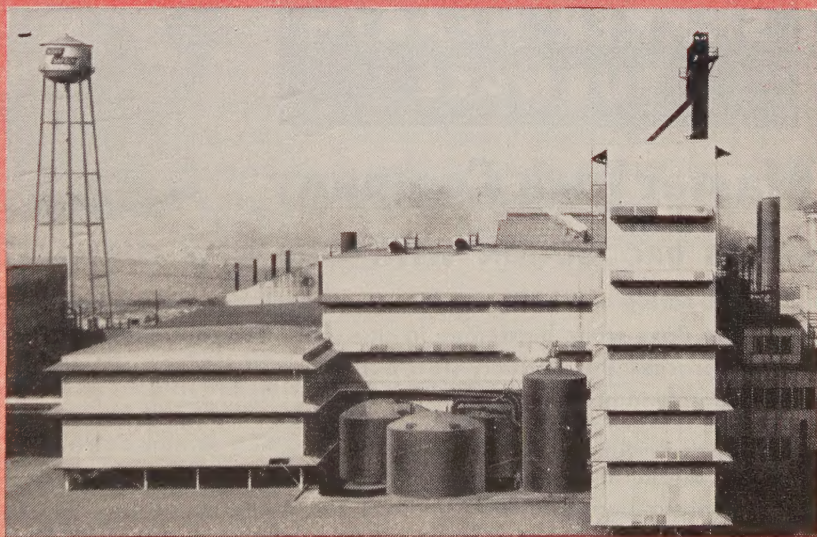
# INSUL-MASTIC

Corrosive conditions in paper pulp mills and steel mills are terrific. The atmosphere in these plants is charged with acids and alkalis that eat the heart out of steel in a few years—or even a few months. INSUL-MASTIC *superior* COATINGS are giving protection that will last for years to this costly metal equipment in these extremely corrosive places.

In other industries also, Insul-Mastic Gilsonite Coatings are being specified because of their resistance to chemicals and moisture vapor; their minimum shrinkage and great temperature range.

For long coating life under severe conditions specify INSUL-MASTIC *superior* Coatings.

**ST. REGIS PAPER CO.,**  
by using *Insul-Mastic*  
Type "D", the Coating  
that *Insulates and Pro-*  
*fects*, will prevent up to  
65% of heat loss from these  
black liquor tanks and foam  
tank. Many other vessels  
throughout this modern new  
mill at Pensacola, Florida  
are coated with Insul-Mastic  
for corrosion prevention as  
well as insulation.



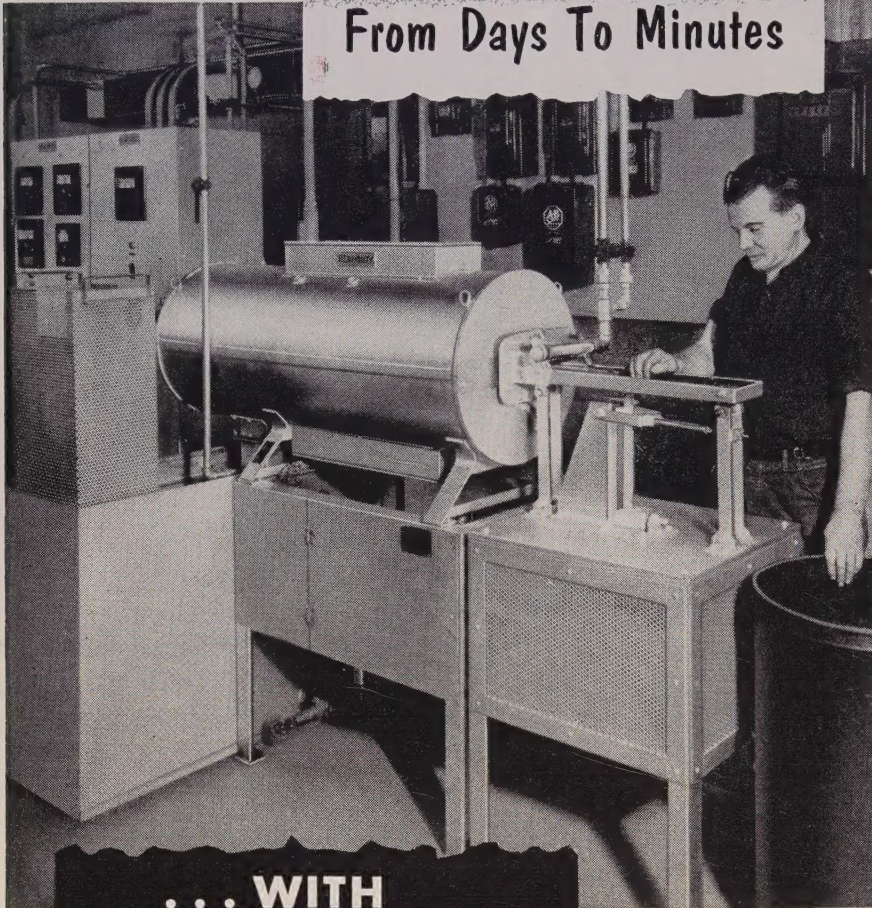
**Insul-Mastic Corporation**  
OF AMERICA

1166 OLIVER BUILDING · PITTSBURGH 22, PA.  
Representatives in Principal Cities





## Hardening Time Cut From Days To Minutes



**... WITH  
HEVI DUTY  
SHAKER HEARTH  
FURNACE**

### Master Lock Company

**SPEEDS PRODUCTION WITH THIS NEW FURNACE**

Heat treating of an 80 pound batch of small springs required two days when hardening in charcoal filled containers. This process was not only slow but also costly due to a high percentage of rejects.

Now in a Hevi Duty Shaker Hearth Furnace, a similar batch is "bright" hardened in 75 minutes. Each spring receives uniform heat treatment without distortion thus cutting production costs. This furnace has been designed to solve your problem of heat treating small parts.

**HEVI DUTY**

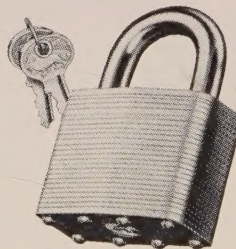
Learn more about this modern production tool and the way it can help you.

WRITE FOR BULLETIN HD-850.

**HEVI DUTY ELECTRIC COMPANY**

MILWAUKEE 1, WISCONSIN

Heat Treating Furnaces... Electric Exclusively  
Dry Type Transformers Constant Current Regulators



## LETTERS

Concluded from preceding page

the window sill type having capacities of 1/3, 1/2 and 3/4 ton.

We have read several articles in various issues of STEEL on this subject and are wondering whether you may have made studies which might be helpful to us in this connection.

George C. Parkard  
Ebasco Services Inc.  
New York

• A research study, "The Market for Air Conditioning in the Metalworking Industry," is sent.—ED.

### A Story of Ingenuity



In the Aug. 25 issue of STEEL, there was published an article entitled "A South Korean Industrial Scrapbook" (p. 74). I would like very much to have this story for my files.

Berthold Gerow  
17969 Saratoga Road  
Los Gatos, Calif.

• Tear sheets are sent.—ED.

### The Reprint Department

Will you kindly send us a reprint of the article "Steelmaking Processes Re-examined" which appears in your Oct. 6 issue (p. 102).

L. Schlossberg  
Quaker Chemical Products Corp.  
Conshohocken, Pa.

We have noted with considerable interest your article "Chromium Plating . . . New Life for Worn Parts" (Mar. 31, p. 76). Can we get 6 sets of tear sheets of that article?

H. F. Littlejohn Jr.  
Ward Leonard Electric Co.  
Mount Vernon, N. Y.

• They're on the way.—ED.

### Found: A Booster



It is my wish to say that STEEL stands first in interesting and constructive data of any magazine of several which are consistently read and I can assure you that each issue will be looked forward to until I retire.

E. J. Downing  
Gardner-Denver Co.  
Denver, Colo.



December 8, 1952

One of your toughest problems over the next few months will be the tightening manpower supply. Total civilian employment in November hit 62.2 million, a high for the month and about 1 million above the previous record November level. As a result, the Labor Department's Bureau of Employment Security transferred 13 areas from its list of surplus labor market centers to places with a balanced supply. Two of those centers are Detroit and St. Louis. Worse than ever this winter will be the shortage of engineers. For example, Illinois Institute of Technology has 140 potential candidates for degrees in January. Already 236 companies have filed with the institute that they have engineering jobs available.

A National Labor Relations Board ruling in a case involving Phelps Dodge Copper Products Corp. has wide implications for industry. NLRB decided that wage discussions or other types of bargaining can be called off by an employer when a union starts a slowdown. Furthermore, employers are within their rights to fire or otherwise penalize employees who engage in slowdowns. The ruling could mean the end of the slowdown strike just as the sitdown technique of the 1930s was finally abandoned after a Supreme Court ruling.

On Nov. 12, NEMA approved a new suggested standard for open-type, 1800 rpm motors, 1 to 30 hp. Now, additional proposals will be studied to cover motors of other speeds and enclosures. This NEMA committee movement to rerate motors, under way since 1937, has the objective of giving users a better, more compact product and saving materials. On Oct. 20 this column inaccurately implied that General Electric was generally redesigning its motor products, asking NEMA to change its standards, and thus pressuring all motor manufacturers to use them. As with all NEMA-sponsored standards, these may be used freely by any motor manufacturer.

Renegotiation "does not belong in the peacetime procurement picture." The paperwork now required in renegotiation is "far more burdensome" than during World War II. "The procedure to renegotiate military sales is too slow." Those are the three major complaints about renegotiation, as turned up in a survey by the National Industrial Conference Board. It's a matter that will be taken up with the new administration by business men.

Industry's considered reaction to the appointment of plumbers' union President Martin P. Durkin as Secretary of Labor is: Let's reserve judgment until the man has a chance to show what he can do. Only a



minority of the metalworking executives interviewed by STEEL on the matter agreed with Senator Taft that the appointment was "incredible," although most admitted they were "quite surprised" . . . Not so surprising is Walter Reuther's election to the CIO presidency. Industrialists think him a dangerous man.

## Riddle of Maintenance

First steps are being considered to solve the riddle of maintenance of what may be excess capacity. A list of 1500 plants, all privately owned but containing government equipment and turning out military end products, is now under study at ODM and the Bureau of the Budget. The idea is to find a way of assuring the maintenance of capacity with equipment in place. Watch for the answer to be some kind of an agreement under which Uncle Sam will pay maintenance costs.

## Buick Steps Forward

Capacity to produce almost 50 per cent more Buicks than were built in the General Motors division's best year—1950—will be available when its present expansion program is finished in 1954. Then, it will be capable of building 750,000 cars a year . . . Buick's Skylark, a sports-type convertible being readied for introduction, will be priced fully equipped at less than \$5500. The car differs from the prototype shown last summer in that its windshield and seat height will be lower, and it will have a 5-inch shorter wheelbase.

## Ready To Go at Fairless Works

The first blast furnace at U.S. Steel Corp.'s big new Fairless Works will be fired Dec. 11. The first open hearth will be tapped the same day. Fairless will eventually add 1.8 million tons to U.S. Steel's annual ingot capacity.

## Straws in the Wind

Industrial use of electricity in the water-short Pacific Northwest will not be reduced beyond the November cut of 10 per cent until January, at least . . . Kaiser Steel Corp. is increasing output of coking coal at its Sunnyside, Utah, mines to 1.6 million tons annually next year . . . Radio-TV parts and tube makers will fight, into the courts, if necessary, the OPS refusal to suspend price controls again on parts and tubes.

## What Industry Is Doing

Watch for another battle in Congress on basing point pricing, zone pricing and identical pricing (p. 65) . . . The controls ship is still under way, but it may go into drydock by next June 30 (p. 66) . . . Industry's profits in the past seven years were overstated 44 per cent—over \$38 billion—through obsolete depreciation practices, says the Machinery & Allied Products Institute (p. 67) . . . Farm machinery makers are expecting to reap only moderate sales in 1952 and 1953 (p. 68) . . . Railroaders reaffirm their need for 228,456 new freight cars by 1955 (p. 69) . . . The new Colmar, Pa., plant of Link-Belt Co. proves that jobbing shops may use mass production techniques and still be adaptable (p. 70).



# UNITED CLUTCH HEAD® SCREWS

When you look inside the Clutch Head design you will see why its popularity is growing so fast.

The deep straight-walled recess with the driving face parallel to the axis prevents driver ride-out. This requires less end pressure than with other recessed heads to set the screw in place, and prevents operator fatigue. Combined with the Type "A" bit, Clutch Head screws will give you complete satisfaction — and your field service men won't need a special tool; a common screw driver will do.

Ask for a descriptive brochure.

*—when you think of  
fasteners think of United*

**SCREWS • NUTS • WASHERS  
CLUTCH HEAD SCREWS  
STAMPINGS**

©Reg. U.S. Pat. Off.

## United Screw and Bolt Corporation

Chicago 8

Cleveland 2

New York 7



# Chapman Casts World's Largest Stainless Gate Valve

**9-ton casting produced in  
austenitic chromium-nickel  
stainless steel**

This valve, produced by The Chapman Valve Manufacturing Co., Indian Orchard, Mass., for the defense effort, is used in corrosive water service. It is stated to be the world's largest, with an overall height of 19 feet, weighing approximately 18,000 pounds. The rough casting weight was approximately 36,000 pounds.

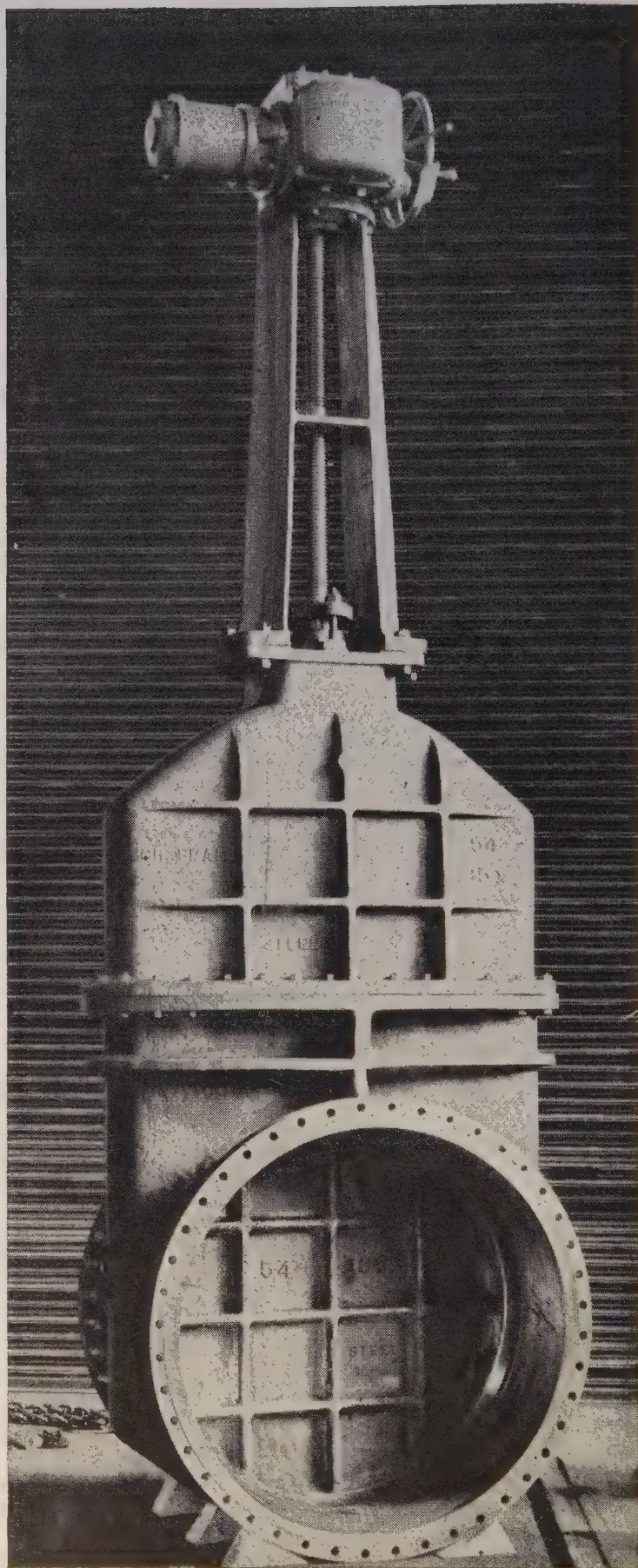
Cast in low carbon 18-8 chromium-nickel stainless steel, it is one more demonstration that size is no limiting factor when you cast parts in stainless steels to provide resistance to corrosion and erosion.

Stainless steel resists attack by nearly all oxidizing acid conditions. In addition, it helps you trim bulk and deadweight without sacrificing strength and safety.

At elevated temperatures, austenitic chromium-nickel stainless steels are distinguished by their strength and outstanding resistance to oxidation. At temperatures down to  $-320^{\circ}$  F. they retain their toughness and unusual strength.

Investigate all the benefits stainless steels can give you. Leading stainless steel companies and foundries produce nickel-containing stainless steels in all commercial forms. A list of sources of supply will be furnished on request.

At the present time, the bulk of the nickel produced is being diverted to defense. Through application to the appropriate authorities, nickel is obtainable for the production of austenitic stainless steels for many end uses in defense and defense supporting industries.



**THE INTERNATIONAL NICKEL COMPANY, INC.** 67 WALL STREET  
NEW YORK 5, N. Y.





December 8, 1952

## Overripe for Reform

In casting about for opportunities to improve the functioning of the federal government, the incoming Eisenhower administration should not overlook the Labor Department. This youngest of departments with a secretary of cabinet rank was established in 1913. Its first three secretaries—William B. Wilson, James J. Davis and William N. Doak—administered the affairs of the department for 20 years with little excitement or furor.

This routine of serenity was rudely shattered when the Franklin D. Roosevelt administration came into power in 1933. Since then the official lives of Secretaries Frances Perkins, L. B. Schwellenbach and Maurice J. Tobin have been made hectic by as queer a sequence of events as has ever confronted cabinet members. John L. Lewis made a horse-trading political deal with President Roosevelt. The Wagner Act was passed and the National Labor Relations Board established. The Taft-Hartley Act superseded the Wagner Act. The National Mediation Board was set up. All of these and other New Deal and Fair Deal agencies created to handle labor problems operated outside of the jurisdiction of the Labor Department.

In spite of this elaborate machinery, labor turmoil grew from bad to worse. President Truman chose to ignore lawful procedure as much as possible. He resorted to fact-finding boards, special mediation panels and other expedients in order to circumvent the will of Congress. In certain instances—one as recently as last Wednesday—he acted on his own personal whim in direct contradiction to the law of the land. In a very real sense, he has been at certain times the best business agent CIO, AFL or UMW ever had.

Several fates have intervened to facilitate a long overdue reform in the government's handling of labor problems. The advent of a new administration in Washington, the succession of George Meany and Walter Reuther to posts held by the late William Green and Philip Murray and the well-known anti-Truman attitude of Congress on labor matters augur well for drastic changes in government policy.

The circumstances are propitious for a rebirth of the Labor Department and a return to lawful means of handling labor disputes.

EDITOR-IN-CHIEF

**PROFIT IS SUBNORMAL:** In its "Capital Goods Review," Machinery & Allied Products Institute shows convincingly how American industry penalizes itself by overstat-

ing its profits. In the seven postwar years its true profit, according to the institute (p. 67), has been \$88 billion instead of the \$126 billion it reported. The overstatement of profit by \$38



billion, or 44 per cent, results from industry's practice of basing depreciation charges on original cost. The difference between original cost and replacement cost must be made up from what erroneously was reported as profit.

If industry had reported profits properly from 1946 to 1952, it would have been found that the ratio of profits to sales in that period was only 3.2 per cent, whereas in the seven-year period of 1923-29, the ratio was 5.3 per cent. Several other comparisons put forth in the institute's report show that true profits in recent years have been "consistently and substantially subnormal."

Industry's needless overstatement of profits has encouraged anti-business elements in government and unionism to make much of industry's "exorbitant profits." Isn't it high time that we be realistic about true earnings!

\* \* \*

**LOW INVENTORIES DUE:** Management executives in general and purchasing agents in particular are smacking their lips in joyous anticipation of the return sometime in 1953 of sound, normal inventories. Since 1949, inventories in the metalworking industries at the year-end (p. 75) have been mounting steadily. In a large measure this reflects the abnormal circumstances of shortages, strikes, government regulations, etc. which forced manufacturers to stock enough goods to be prepared for almost anything.

Early relief from this form of torture is seen in the present trend toward firmer delivery dates. As sources of supply become more dependable, manufacturers will be able to reduce inventories to more realistic proportions. In some mass-producing establishments there is hope that a true buyers' market may make it possible for precise delivery schedules to become almost a complete substitute for inventory. In any event, present indications point to a drastic reduction of inventories in 1953.

\* \* \*

**PENALTIES BACKFIRE:** In most European countries the Korean boom has been tapering off gradually since mid-1951. This is intensifying competition for export markets and is creating new internal problems. For instance, in Sweden and Italy the easing of boom-time activity is affecting employment, but in strangely different ways.

In Sweden, Korean War stabilization (p. 76)

is reducing employment in some consumer goods industries. This is a godsend to certain capital goods industries, such as iron and steel, because it is relieving what had been a serious manpower shortage. On the other hand, in Italy the decline in activity aggravates what already had been the highest unemployment rate in Europe. By law, Italian employers must pay a high penalty for discharging employees. This causes employers to be reluctant to hire men for short-term work. It is an excellent example of how a government regulation which makes the labor market inflexible invariably backfires in time of need.

\* \* \*

**THE TIDE IS TURNING:** If you take a good look at recent happenings in Britain and the United States you must be cheered by the evidence that the pendulum is swinging from left to right. In the United States, President-elect Eisenhower's cabinet appointments point to an incoming administration that will shift rightward. In Britain Chancellor of the Exchequer R. A. Butler has done such a good job of turning an alarming deficit into a modest surplus, that the Churchill party is gaining strength. The last "no confidence" vote gave him the largest margin since he assumed office.

These signs are encouraging but not conclusive. We've got to fight for every gain against the demoralizing influence of leftists. The tide is turning, but we must be smart, alert and positive.

\* \* \*

**SPECIALIZATION PAYS:** In debates about alleged competition between large and small enterprises, one encounters cynics who say that the "bigs" are so powerful that no small fry can encroach upon their preserves. However, there is a not-too-vocal minority of enterprising individuals who are convinced that the big outfits are vulnerable and that their very bigness offers opportunities for the "smalls."

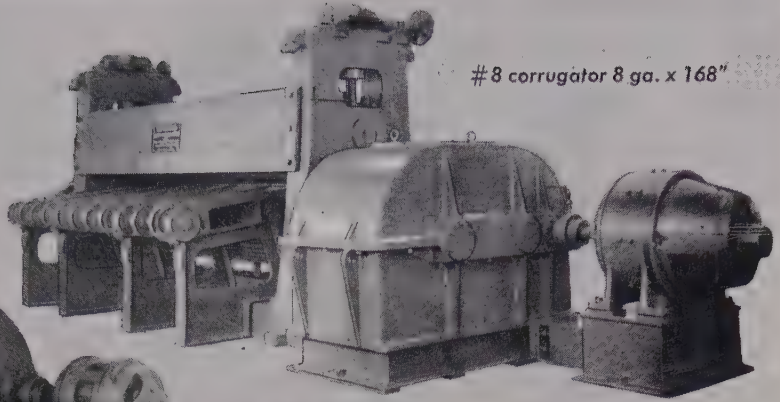
American Silver Co. has cashed in on this viewpoint. It is custom rolling ultra-thin, high precision strip (p. 94) on orders so small or so exacting in specification that the big strip producers do not want the business. We are firm believers in the idea that there are numerous cases where specialization in a product that is a headache for big outfits can be profitable for smaller enterprises.



Stamco #6 standard 12 ga. x 144"



#8 corrugator 8 ga. x 168"

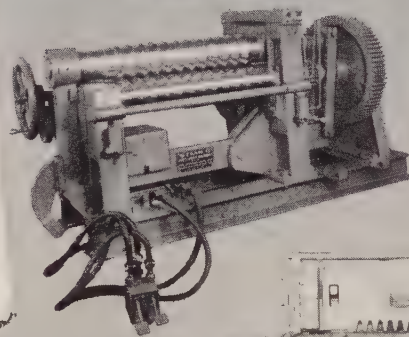


**For Roll Corrugat-  
ing and Culvert  
forming...see**

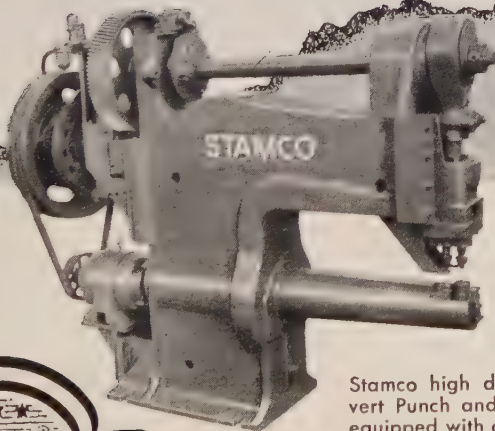
# Stamco



Stamco #6A high  
speed corrugator

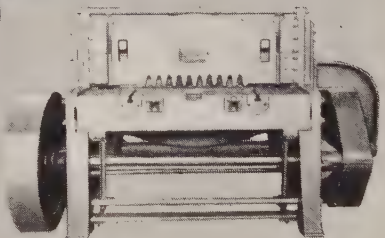


Stamco  
8 ga. Culvert  
Curving roll

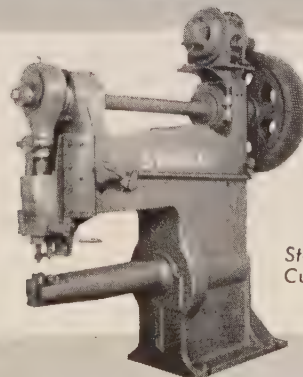


Stamco high duty Cul-  
vert Punch and Riveter  
equipped with air oper-  
ated friction clutch

Stamco 8 ga. x 36"  
corrugated shear



Stamco standard  
Culvert Punch and Riveter



**STAMCO, Inc., New Bremen, Ohio**





## This is Inland's stand:

To be large enough to manufacture a wide variety of products for midwestern steel users—yet small enough to give personal, thoughtful attention to each customer.



### INLAND STEEL COMPANY

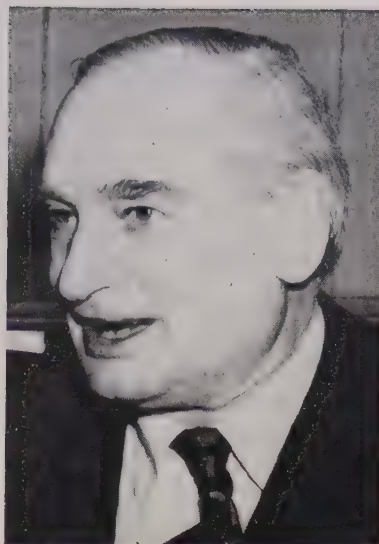
38 South Dearborn Street • Chicago 3, Illinois

Sales Offices: Chicago, Milwaukee, St. Paul, Davenport, St. Louis, Kansas City, Indianapolis, Detroit, New York





Lowell B. Mason of the FTC



Sen. William Langer

NEA

*They're Key Figures in the . . .*

# Battle Ahead on Pricing Policies

**WATCH** the new Congress for pricing policy action that may affect you.

It looks as though another battle is shaping up to clarify what is or is not legal in basing point pricing, zone pricing and identical pricing. The present muddle grew out of Federal Trade Commission action in the last several years against pricing practices of the cement, steel and other industries.

**Spurs to Action**—Two of the cases of harassment—those against the Chain Institute and National Lead—are just due for decisions. By coming at this time, they would serve to stimulate clarifying action in the 83rd Congress that will convene in January. Previous efforts, in the 81st and 82nd Congresses, have been unavailing.

The Chain Institute case concerns basing point pricing, and the National Lead case involves a system of zone prices. Both cases have been before the FTC many months. Now the heat is on to get the decisions out of the way before the new administration takes over. The decisions will be by a divided commission, with the majority holding that the group

of companies involved in each of the two cases are guilty of a price-fixing conspiracy—the evidence being identical prices. Commissioner Lowell B. Mason, who is considered most likely to become commission chairman under the new administration, is expected to dissent, arguing that mere identity of prices or of a pricing system, even though knowingly created, is not necessarily proof of a conspiracy.

**Revival**—These cases are expected to raise the ghost of the old argument over “conscious parallelism of action” which touched off much of the discussion in the 80th and 81st Congresses where legislation (S.1008) aimed at clipping the wings of the FTC was introduced.

The bill passed both houses, but was vetoed by President Truman. There were not enough votes to override the veto.

**Safeguard**—The bill would have provided that no geographic pricing system would be unlawful, standing by itself. It also would have assured the right of a seller to meet or beat in good faith the price of a competitor. This, say proponents of the measure, would

have obviated the present danger, under the Robinson-Patman Act, of proceedings against a manufacturer who aims either at getting new or retaining old customers.

Proponents of S. 1008 argue that manufacturers are barred now from absorbing freight to meet competition. Because of the dominance then of a sellers' market, Congress did not consider the freight absorption problem as very real. But when the sellers' market recedes, freight absorption will become a necessity for manufacturing plants located farthest from consuming markets.

**Shaping Up**—The hard facts of economics, then, are expected to add fuel to the fire—with the chances now considered good that some of the teeth will be pulled from the Robinson-Patman Act.

Perhaps the biggest single stumbling block to quick action, say proponents of basing point legislation, is Sen. William Langer (Rep., N. Dak.), who is expected to head the powerful Senate Judiciary Committee. He was one of the more vociferous opponents to such legislation in the 81st and 82nd Congresses.



# Controls' End Now in Ike's Hands

**Defense Mobilizer Henry Fowler won't order an end to CMP effective second quarter as many had hoped. He's leaving the knotty controls question to Ike's advisors**

THE SHIP *Controls* is still under way this week, but it's evident to all observers that she has rudder trouble.

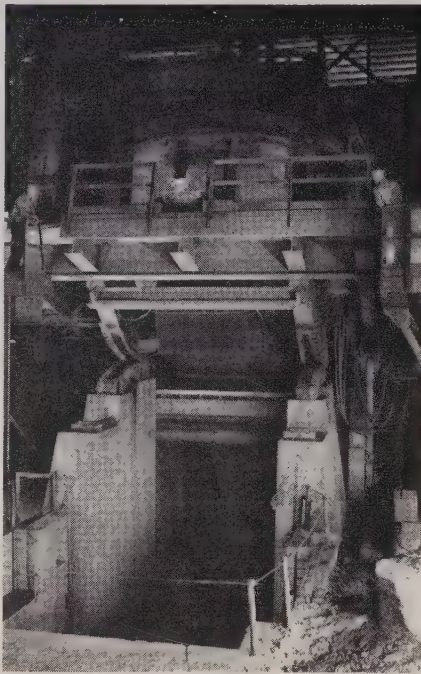
Many hoped she would be dry-docked soon, but Defense Mobilizer Henry H. Fowler battened down the hatches last week and ordered "steady as you go." His command scuttled any hope that CMP distribution of steel to the civilian economy would be dropped now, effective in the second quarter of next year, but it found the crewmen in chaos. NPA had already started to pay off the controlled materials crew and is hard at work signing them back on.

**New Pilot**—Mr. Fowler's reasoning is that it should be the new president's prerogative to find controls shipshape on Jan. 20 in the event he wishes to continue the voyage. Contingent on his military production course, he can reduce speed or drydock her, but the decision will be a painful one for Eisenhower.

Some small manufacturers aren't sure they want to compete on the open market for yet-limited materials. They prefer to play safe and take their certain, though limited, allocations. Larger corporations, on the other hand, hope for an early return of the open market so they can shed the red-tape fetters and begin to plan production.

**Still Good**—If controls continue or not, manufacturers are assured of substantially increased steel supplies—probably about 30 per cent—as production of ingots increases. For the same reason, Ike may see fit to decontrol by the second quarter anyway.

Business was disappointed by Mr. Fowler's adamance. But as Harry Truman stands on the poop deck countermanding the WSB's course on the miners' \$1.90 wage increase, it's plain to all the crew is wearing life preservers. Chances are the *Controls* will go into semi permanent drydock by next June 30. (see STEEL, Nov. 24, p. 69)



## New Furnace at Timken

One of three modern 20-foot, top-charge electric arc furnaces at Timken Steel & Tube Division of Timken Roller Bearing Co., Canton, O., appears above. The installations will replace an equal number of 125-ton open hearths, with an expected production increase of 75,000 tons annually. One design improvement is electro magnetic inductive stirrer seen on bottom

## Steel Crimps Cabinet Sales

Steel allocations under CMP in the first quarter are expected to reduce the operating rate of the steel cabinet manufacturing industry below that of any previous quarter since start of the Korean War.

That's what members of the Steel Kitchen Cabinet Manufacturers Association were told at their quarterly meeting in Cleveland last week. While the sales potential for kitchen cabinets is high, full advantage of demand cannot be realized because of shortages of steel and other raw materials. Removal of government controls, hoped for by second quarter, 1953, will permit full operations by manufacturers in working off order backlogs.

Officers of the association are:

President, M. M. Miller, Miller Metal Products Inc., Baltimore; vice president, C. S. Motter, Morton Mfg. Co., Chicago; executive secretary-treasurer, Arthur J. Tuscany, Cleveland.

## More Die-Block Capacity Needed

To meet forging and extrusion requirements for the Air Force heavy press program, die-block capacity will have to be increased substantially with some blocks weighing in excess of 20 tons each. That is the conclusion of those who attended the annual meeting of the American Society of Mechanical Engineers held Nov. 30-Dec. 5 at the Statler and McAlpin hotels in New York. In discussing the metallurgical factors involved in the program, the engineers noted that aluminum alloy ingots and rolled stock must be larger. Die-sinking practice is already undergoing changes.

T. L. Fritzlen, chief metallurgist for Reynolds Metals Co., Richmond, Va., estimates an aluminum alloy ingot 32 inches in diameter and weighing up to 8000 pounds will be required. Up to 16-inch-diameter rolled stock also will be required, but that in turn will need larger blooming mills than those now used for rolling aluminum.

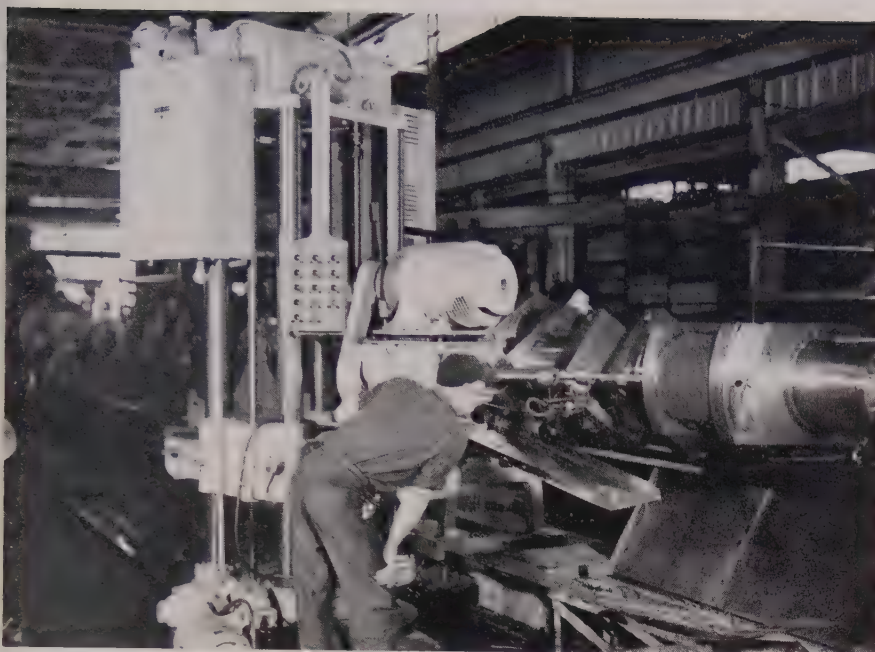
While much has been accomplished in diemaking for extrusions, T. F. McCormick, metallurgist at Aluminum Co. of America, Pittsburgh, says it is not yet possible to design and build a die for complicated shapes with complete assurance it will produce a usable extrusion the first time tried.

## New Renegotiation Policy

The Renegotiation Board has decided on a general policy of accepting the figures of a contractor who, for renegotiation purposes, places a higher value on his facilities than their book value for accounting purposes. It will also accept his tax write-off.

A staff of appraisers and engineers will make necessary investigations if contractors' claims appear unreasonable. This is discussed in Renegotiation Staff Bulletin No. 10, obtainable at five cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.





### Horizontal Machine Aids Drilling in Crankshaft

Cooper-Bessemer Corp., Mount Vernon, O., ordered this horizontal machine for deep hole drilling in heavy crankshafts. Designed by Cooper-Bessemer engineers, this machine employs a machine head moving along the shaft, swiveling to any angle and adjusting to height required to drill a complete shaft at one setting. Above, oil holes are drilled in a crankshaft weighing nine tons

## Industry's Profits: Overstated 44%

**Inflated replacement costs are thinning industry's profits alarmingly. It's time for new emphasis on the role of profit and modernization of our depreciation practice**

**OBSOLETE** depreciation practice exaggerated American industry profits 44 per cent—over \$38 billion—for the seven postwar years. The reason: Replacement costs rise during an inflation period, depreciation charges based on original cost become inadequate and the resulting deficit must be made up from what is erroneously accounted as profit.

An accounting based on rising replacement costs would reveal industry's true profit to be \$88 billion rather than the \$126 billion reported for the postwar period, says the Machinery & Allied Products Institute. And had the treasury allowed replacement costing for income tax purposes, the \$38 billion difference in the reckoning of taxable income would have effected tax savings of more than \$17 billion!

**Marked Contrast**—As it is now, corporations have paid more money in income taxes for the period than they salvaged in real profits—\$111

billion in taxes against \$88 billion profit—rather than the markedly contrasting \$111 billion to \$126 billion ratio now extant.

Contributing also to the exaggerated profit picture is the fact that inflation results not only in the overstatement of profits, but an understatement of net worth. Comparing profits with net worth as both are commonly stated gives a profit level of over 10 per cent for the period. However, with profits and net worth corrected on a replacement cost basis, the real profit level is only 5.9 per cent.

**Cause for Concern**—During the postwar period, corporate debt has risen \$80 billion. When the profit of corporations is realistically computed, they have an offsetting increment of only \$34 billion real net savings rather than the more reasonable \$72 billion now complacently assumed. That gives rise to serious question about the supply of funds for equity financing. Even when the \$13 billion realized (net)

in the interval from sale of stock is added, the total addition to equity of \$47 billion is still far below the addition to debt.

The role of profits in a dynamic and expanding economy and the need for heavy and sustained investment in a new productive technology for a rising standard of living and for national security needs re-emphasis. Many corporate managements are keenly aware of the illusory character of the profits they have reported in recent years. Others have been taking them at their face value. In so doing, they have been fooling not only labor, politicians and the public generally, but themselves as well.

Properly computed and evaluated, postwar profits have been low—not high.

### Tenn-Tex Opens New Plant

Formal ceremonies opened Tenn-Tex Alloy & Chemical Corp.'s new Houston plant. Their facility, for production of ferromanganese and ferrosilicon, is rated at 2500 tons of alloys a month, processing 5000 tons of manganese ores which will be imported through Houston.

Carl McFarlin, president of the newly-organized firm, is also president of Tennessee Products Corp., Nashville, Tenn. While most of the manganese production at his Houston plant will go to the neighboring Sheffield Steel Corp. mill, some will be available for general distribution.

Three electric furnaces will produce metal alloys from raw ores. There are two main buildings on the site in addition to several smaller structures.

### 74 Nations Aid American Steel

Some 74 foreign countries received an estimated \$320 million from this country in payment for materials, metals and ores required by the U. S. steel industry, American Iron & Steel Institute reports.

The greatest disbursement went to Canada, receiver of more than \$91 million, principally for nickel, iron ore, zinc and ferromanganese. Next in importance as exporters was Europe, not including Norway and Sweden. Tin is the most valuable metallic import from this area.







equipment, the same as it hopes to turn out next year, it consumed less than 500,000 tons of finished steel a quarter. The industry should have little trouble getting that much in 1953.

**Postscript** — Although there should be plenty of most types of farm equipment next year, shortages in some lines that existed in 1952 may persist in the next 12 months. Among products in short supply have been corn pickers, balers, combines and special items for processing, storage, feeding and the like. Adequate production of those short lines has been hampered by shortage of materials and components and to some extent by strikes in implement manufacturing plants.

This year's drought has probably hastened for agricultural equipment makers a process now going on in all consumer durable goods industries—the transition from a sellers' to a buyers' market. The ready-made market of the last 12 years must be more man-made from now on, industry leaders point out.

They'll be emphasizing the cost-saving aspects of their implements, designing them to save labor, engineering them to do farming faster. For a big factor in machinery makers' favor is the ever-increasing need for more food. The

1952 crop production was an all-time record, despite bad weather; 1953 may be another milestone.

**For the Long Pull**—W. A. Roberts, president, Allis-Chalmers Mfg. Co., told members of the Farm Equipment Institute that by 1975 this country will need 30 per cent more farm production when there may be a population of 200 million.

If that comes about, implement makers can expect excellent sales harvests in the future.

## Troubles in Transport

**Railroaders reaffirm their need for more freight cars. DTA says truckers' needs are growing, too**

RAILROADERS have reaffirmed their goal of a 1,850,000-freight car fleet by Dec. 31, 1954. W. J. Faricy, president of the Association of American Railroads, said 228,456 cars would have to be built to attain the goal, since 135,000 cars are due for retirement by that time.

As in 1951, the program calls for construction of 10,000 freight cars a month for Class 1 roads.

**Clearing Up**—That statement refocuses the freight car building program after both demand and building schedules have been blurred during 1952. The steel

strike reduced freight car loadings this year. In turn, operators hesitated to place orders for new cars. They made-do with old cars which normally would have been retired.

So, even though freight car production never reached the 10,000-cars-a-month rate since October, 1951, freight car backlogs dropped constantly from 120,251 in January, 1952, to 90,708 in October, 1952.

**Insufficient Benefit**—Now, railroaders and the Defense Transport Administration say car building must get up to 10,000 a month as quickly as possible. It may require a shift of emphasis in the steel industry. James K. Knudson, DTA administrator, says: "While there has been additional steel capacity, this has not sufficiently benefited the transportation industry, as much of that capacity has been built for the production of lighter types of steel so much in demand for producing consumer goods."

DTA is also urging increased production of motor freight equipment. DTA field service reports reveal October highway freight traffic increased an average of 11 per cent over October, 1951; September highway traffic was up 9 per cent over September, 1951.

**If it has Wheels** — R. R. Monroe, director of the Street & Highway Division of DTA, says, "In some areas, motor property carriers are utilizing all of their equipment to meet this increased demand," and unless sufficient replacement parts and supplies are forthcoming "a real hardship might be incurred by carriers now using equipment to near-capacity." A DTA survey indicates traffic will remain at a high level for the next six months and show a power unit replacement need of at least 5.8 per cent of the fleets of carriers interviewed.

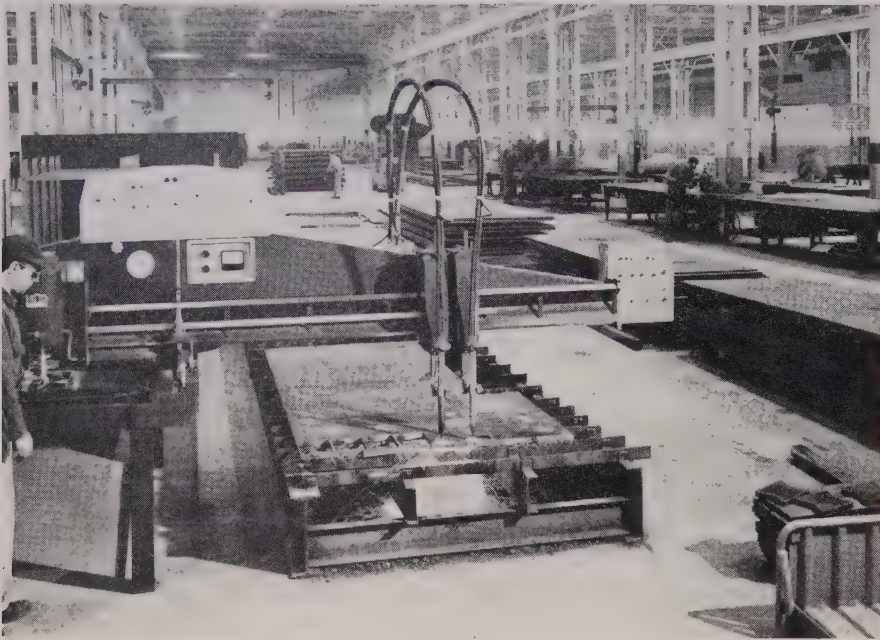
## Alcoa To Build New Plant

Aluminum Co. of America plans to build a fabricating plant near Lancaster, Pa., for producing aluminum screw machine products, fasteners, rivets and nails. Operations at Alcoa's Edgewater, N. J., plant would be relocated at the \$3 million Lancaster factory. Meanwhile, aluminum sheet, impact extrusion and foil production could be expanded at Edgewater.



Moldboards and perfectly-fitting shares for John Deere truss-frame plows are ground to a "soil-flow" polish at Moline, Ill., plant of Deere & Co.





Flamecutting heavy plate in one of five production bays as a . . .

## Jobbing Shop Runs on Mass Production

**Link-Belt's new Colmar, Pa., plant proves that custom manufacturing shops can incorporate both straight-line production methods and adaptability**

MASS-PRODUCTION techniques can be applied to job shops too. For proof just look at Link-Belt Co.'s spanking-new 300,000-square-foot plant at Colmar, Pa. where manufacture of custom-designed conveying and processing machinery has been put on a straight-line production basis.

"It's an entirely new concept in custom manufacturing," says Robert C. Becherer, Link-Belt president, as he points proudly to roomy work areas in the 880 x 300-ft plant and two-story office building. "Not only do we have advantages of straight-line production, but relatively few structural shops have the flexibility we have." Layout changes to suit a wide variety of products can be made quickly.

**No Crowding**—Located 25 miles north of Philadelphia, Link-Belt's 17th plant was built to serve the eastern area and export markets. The Austin Co., Cleveland, designed and built the Colmar plant which is served by the Reading Railway. Every day new equipment and machinery are hauled into the plant, which will be in full operation by July, according to L. J.

Carson, general manager. Up to 1500 employees may be needed at the plant, which currently is working on elements for a 100-ton-a-minute iron ore handling system for Orinoco Mining Co. in Venezuela. Completion of this job is set for December, 1953.

Location in the mushrooming Delaware river industrial area is a natural for Link-Belt. It's close to export customers, chemical plants of the East and many industries that are gravitating to U. S. Steel's Fairless Works. The company feels its eastern potential has outgrown its Philadelphia plant, which will be kept in operation.

**Flexibility**—Practically any type of conveying installation or sewage treatment facility can be designed at Colmar, regardless of size, com-

plexity or end use—and a vast amount of space is needed for welding, fitting up and assembly in this type of manufacturing. Engineering quarters are a draftsman's dream, located in a 60-foot-wide columnless area extending across the entire 240-foot length of the office building and allowing plenty of elbow room for drafting tables and desks. Ultimately 240 draftsmen can be accommodated here.

Straight-line production is aided by a system of six 10 to 20-ton Shaw Box cranes, that serve four of five 60-foot production bays with 32-foot clearance below trusses and extend under still higher transverse craneways in receiving and shipping cross bays at either end. Another feature is the high-level illumination created by sealed-beam incandescent lights.

The layout, designed for expansion to double present manufacturing area, is ideally suited for large complex engineered installations designed and fabricated in one location, though many components are brought in from other L-B plants.

## Report Steelmaking Progress

Five new blast furnaces were lighted in the first ten months of this year, and 13 more are scheduled before the middle of next year, American Iron & Steel Institute announces. This expansion is the greatest ever undertaken by the steel industry, AISI says.

The five blast furnaces added 2.3 million tons to the nation's pig iron capacity, raising that total to about 76 million tons a year. Most of the projected furnaces will produce 1500 tons of pig iron a day, or ten times the output of a furnace in 1880. Although their production will be used largely for steel manufacture, additional pig iron will be available for foundries.

## SELECTED DEFENSE CONTRACTS IN EXCESS OF \$100,000

PRODUCT	CONTRACTOR
Lathes	Lodge & Shipley Co., Cincinnati
Parts for Diesel Engines	Cooper-Bessemer Corp., Mt. Vernon, O.
Fuzes	Houdaille-Hershey Corp., Detroit
Crystal Units	Downing Crystal Co., Baltimore
Aircraft Parts	Pratt & Whitney Aircraft Div., United Aircraft Co., E. Hartford, Conn.
Aircraft Engine Parts	Bendix Aviation Corp., Detroit
Ignition Parts	Westinghouse Electric Corp., Pittsburgh
Propeller Parts	Pratt & Whitney Aircraft Div., United Aircraft Co., E. Hartford, Conn.
Telescope Mounts	Graflex Inc., Rochester, N. Y.





## Army's BARC Dwarfs Earlier Sea-Going Vehicles

Army engineers introduce the BARC, a 60-ton amphibious cargo vehicle designed to eliminate beachhead supply bottlenecks. Shown above, the BARC is compared with a 2½-ton DUKW, an important amphibian of World War II. In tests at Fort Lawton, Wash., the larger vehicle demonstrated its land-sea adaptability. Afloat, diesel engines drive twin propellers. Ashore, separate engines power the wheels

## CHECKLIST ON CONTROLS

### Materials Orders

**COPPER**—Amendment of Nov 20, 1952, of NPA Order M-16 permits small brass and bronze foundries to self-certify orders for copper raw materials they need to fill authorized controlled materials orders from their customers if their requirements are less than 10,000 pounds of copper raw materials a month and no more than 1500 pounds of domestic refined copper. It also requires that persons, who in the process of manufacturing generate 5000 pounds or more copper-base alloy scrap per month, segregate such scrap containing 4 per cent or more of nickel by weight. Amendment was effective Nov. 20.

**STEEL DISTRIBUTORS**—Schedule 4 of NPA Order M-6A, issued and effective Dec. 1, 1952, prohibits delivery of certain semifinished steel products by steel distributors except pursuant to authorized controlled materials orders.

### Controlled Materials Plan

**CONSTRUCTION**—Direction 9 to revised CMP Regulation 6, issued and effective Dec. 1, 1952, provides for the automatic revalidation of construction allotments issued pursuant to the provisions of Section 8 of revised CPM Regulation 6 and permits placement of authorized controlled materials orders calling for deliveries of controlled materials in the calendar quarter next succeeding the quarter for which the allotment is made.

### Price Regulations

**STAINLESS STEEL**—Amendment 7 of CPR 98, issued Nov. 28, 1952, and effective Dec. 3, permits warehouse resellers of stainless steel strip to determine their ceiling prices under the warehouse resellers' regulation in the same manner as for stainless steel sheet.

**SECONDARY ALUMINUM**—Amendment 1 of Revision 1 of CPR 54, issued Nov. 28, 1952, and effective Dec. 3, changes the ceiling price for secondary aluminum ingots from a delivered basis to a shipping-point basis, with an allowance for transportation charges above \$0.75 per 100 pounds.

**COPPER WIRE**—Amendment 3 of CPR 110, issued Nov. 28, 1952, and effective Dec. 3, makes several clarifying changes in the regulation covering manufacturers of copper wire mill products. Among the changes is the rewording of Section 1 (c), which makes it clear that CPR 110 covers sales only by the actual manufacturer of the commodity and not by any other persons who sell copper wire mill products.

**AIR CONDITIONERS**—Amendment 2 of Supplementary Regulation 30 of CPR 22, issued Nov. 26, 1952, and effective Dec. 2, adds air conditioners, window and console (self-contained), to Appendix A, the list of products which may translate f.o.b. into delivered ceiling prices.

**FILING PROCEDURES**—Amendment 38 of General Ceiling Price Regulation, issued Nov. 25, 1952, and effective Nov. 29, provides that a manufacturer whose gross sales of manufactured commodities were under \$1 million in the last complete fiscal year should file his re-

ports or applications with his OPS district office. If he distributes his commodities nationally or over areas larger than his own OPS region, he should file with the director of price stabilization in Washington.

**FILING PROCEDURES**—Amendment 6 of General Overriding Regulation 10, issued Nov. 25, 1952, and effective Nov. 29, provides that a manufacturer whose annual volume of net sales is \$1 million or less may file reports and applications with the appropriate OPS district office. If his distribution to persons outside that district is substantial, he should file with the director of price stabilization in Washington.

**IMPORTS**—Collation 2 of CPR 31, issued Nov. 26, 1952, incorporates Amendments 1 through 14 inclusive.

**TRANSPORTATION COSTS**—Amendment 1 of Supplementary Regulation 122 of General Ceiling Price Regulation, issued Nov. 28, 1952, and effective Dec. 2, permits some resellers who act as manufacturers' selling agents to increase their ceiling prices to reflect increases in outbound transportation costs.

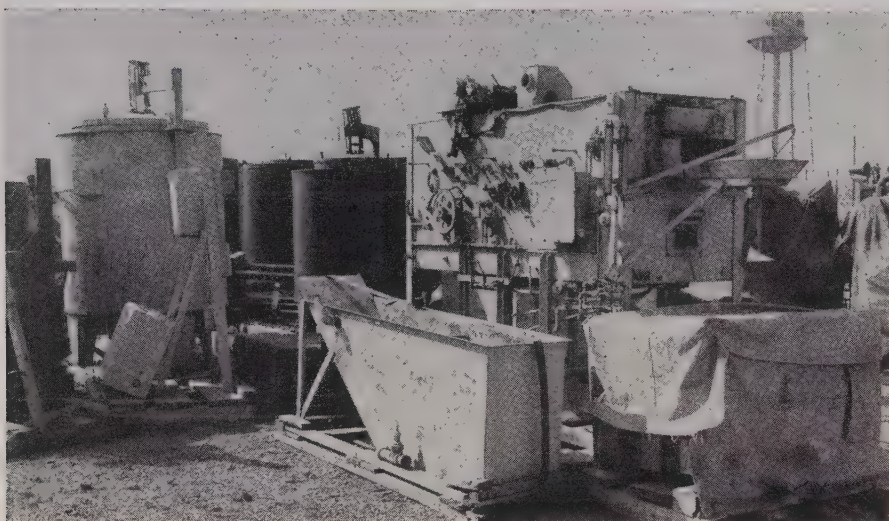
**MERCHANT WIRE**—Amendment 2 of Revision 1 of Supplementary Regulation 100 of General Ceiling Price Regulation, Supplementary Regulation 3 of General Overriding Regulation 35, and Amendment 2 of General Overriding Regulation 35, issued simultaneously on Dec. 1, 1952, and effective Dec 6, authorize producers of some merchant wire steel mill products to calculate ceiling price increases on the basis of columnar price lists rather than by using dollar-and-cents figures previously authorized. These actions also permit resellers and subsequent processors of those products to reflect in their ceiling prices a pass-through of those increased costs.

**COPPER**—Amendment 1 of Revision 1 of Supplementary Regulation 100 of General Ceiling Price Regulation provides a special method for determination of ceiling price increases for producers of copper clad and copper coated steel products. Amendment was issued Dec. 1, 1952, effective Dec. 6.

**STEEL**—Interpretation 1 of Revision 1 of Supplementary Regulation 100 of General Ceiling Price Regulation and Interpretation 1 of Steel Special Order 1, both issued Nov. 28, 1952, make it clear that steel mills may charge the price increase allowed by Revision 1 and Steel Special Order 1 on all steel mill products purchased, fabricated and made ready for delivery prior to commencement of the steel strike but not delivered until after the steel strike was terminated. Interpretation 2 of Revision 1 of SR 100 of GCPR, also issued Nov. 28, makes it clear that the increase in price should be applied only to the base price plus the standard quality extras, but not to boxing, packaging and packing extras.

**REFINANCING**—Interpretation 1 of CPR 67, issued Nov. 28, 1952, and Interpretation 22 of CPR 30, issued Dec. 2, make it clear that a "carryover" or refinancing provision in any agreement between sellers under CPR 30 or CPR 67 and their dealers, permitting a subsequent revision of prices to an amount in excess of the ceiling price in effect at the time of the sale to the dealer (which term includes delivery), is prohibited.





This expensive heat treating equipment is now junk. Is the answer . . .

## A Storage Program by Tool Builders?

**SURPLUS** government-owned machinery and production equipment may be shipped back to the builders for storage.

Each builder would maintain an up-to-the-minute inventory to enable the armed services and their contractors to find wanted equipment without delay.

**Gaining Favor**—Under this proposal, the builders not only would be responsible for proper storage, but could be called on to modify the stored machines for use in a specific program, would get an allotment of government storage space in the vicinity of their plants, and would make their own arrangements with machinery rebuilders with the government paying the bills.

**Exhibit Awful**—The latest surplus equipment scandal to come to light illustrates how the taxpayers, and the defense potential, suffer when storage of industrial equipment is handled without adequate technical advice and supervision.

After World War II, some 500 pieces of industrial heating equipment — including heating, heat treatment, melting, induction and gas-fired furnaces—were disassembled and skidded by a government contractor. They were placed in

storage in buildings at the Lake City Arsenal, just outside of President Truman's town of Independence, Mo., in 1951. To make way for then-current defense needs the buildings were vacated and the heating furnaces moved to a nearby outdoor location. Since then they have been subjected to Mis-

souri weather — rain, sleet, snow and ice, dust and the excessive summer and winter temperatures.

**Rapid Amortization!** — The accompanying illustration affords an indication as to what happened. The expensive equipment, most of which could be used in the present defense program, is largely junk. Too far gone for repairs, it is good only for scrapping and for salvage of some of the parts—particularly those with high nickel and chromium content.

In discussing the Lake City Arsenal experience at their last meeting with the NPA, members of the Industrial Heating Equipment Manufacturers Industry Advisory Committee agreed to prepare pamphlets containing instructions on how to prepare their equipment for storage and how to maintain it in storage. Many in Washington feel that is a good idea—but that it does not go far enough. The only way to make sure that the equipment will come out of storage in usable condition, and the only way to maintain a running inventory of what is in the surplus stocks, they say, is to turn the job over to the builders.



## NEW HOUSE COMMITTEE CHAIRMEN

Republican representatives in line for committee chairmanships after majority reorganization of the House are:

**AGRICULTURE—**  
Clifford R. Hope (Kans.)

**APPROPRIATIONS—**  
John Taber (N. Y.)

**ARMED SERVICES—**  
Dewey Short (Mo.)

**BANKING AND CURRENCY—**  
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Edith Nourse Rogers (Mass.)

**WAYS AND MEANS—**  
Daniel A. Reed (N. Y.)



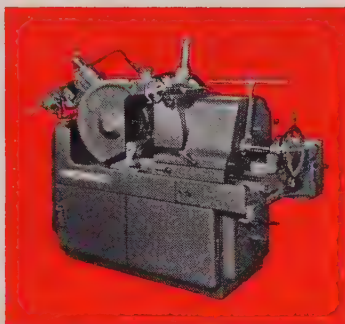
Grinding rocker arm shafts, 16 3/4" long; removing .015" to .020" stock on 170 shafts per hour. Shafts are selectively hardened, and delivered to the grinder in varying degrees of straightness. The production line consists of five CINCINNATI FILMATIC No. 2 Centerless Grinders and one CINCINNATI FILMATIC Centerless Lapping Machine.



# **No handling problem here** **Continuous production setup grinds** **and laps ultra-precision work...** **and only 2 men are needed to run** **5 Centerless Grinders and 1 Lapping** **Machine**



**CINCINNATI FILMATIC No. 2 Centerless Grinder.** Complete specifications may be obtained by writing for catalog No. G-611.



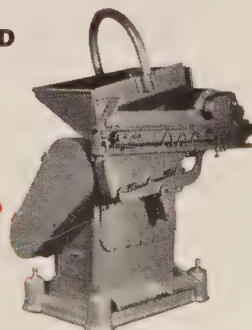
**T**andem setups for continuous thrufeed centerless grinding operations are well known to the high production industries. But not so well known is the latest method of harnessing CINCINNATI FILMATIC Centerless Grinders together to simplify sizing adjustments and resetting. It works this way:

A Feedmatic Hopper automatically loads the work in the first machine. Thereafter, individually motor driven conveyors take over. They are mounted on the machines at the entrance side of the grinding throat and freely supported at the rear of the preceding machine. As the work leaves one machine, it is dropped on the conveyor for the next machine by a counterweighted escape device. Thus each unit can be individually adjusted without affecting the others, and it is unnecessary to maintain a straight line laterally.

To improve surface finish beyond the best obtainable by grinding, a CINCINNATI FILMATIC Centerless Lapping Machine can be placed at the end of the line of Centerless Grinders, as has been done in the production line illustrated. Setups of this type produce exceptionally high-quality work, with very little attention from the operator at each end of the line. CINCINNATI FILMATIC Centerless Grinders offer many advantages for continuous line production or job lots. FILMATIC grinding wheel spindle bearings will never fail; lubrication, including the infeed slides, is automatic; electrical control elements are built-in. And, to top it off, Cincinnati Application Engineers will be glad to help you with your high priority production problems.

**CINCINNATI GRINDERS INCORPORATED**  
**CINCINNATI 9, OHIO**

CINCINNATI Feedmatic Hopper. Type E illustrated for thrufeed work. Type B, for infeed work, also available. Catalog No. G-575-1.



# **CINCINNATI**

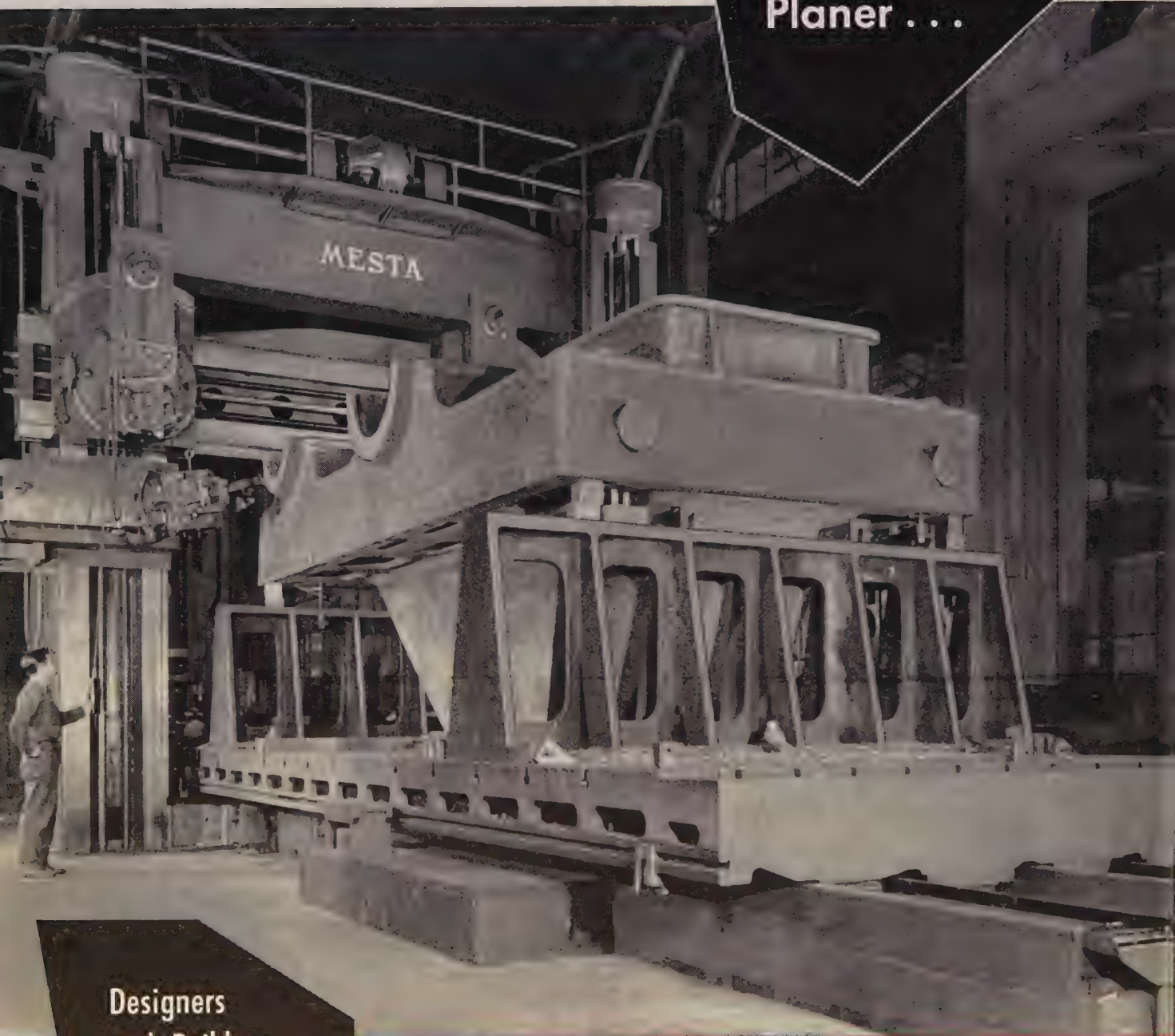
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# YEAREND METALWORKING INVENTORIES

## Climb Steadily Since 1949

(Figures in millions of dollars  
are for materials, supplies, work in process)\*



\* U. S. Bureau of Census

## Will The Upward Trend Continue?

**Probably not. Look for a trend downward in inventory levels as delivery dates firm. Dependable supply could lead to near-elimination of inventory by mass-producers**

FIRMING DELIVERY DATES are beginning to give manufacturers a foundation for sound inventory levels—and it's marvelous for the morale of purchasing agents.

Most have been pleaders, coaxers and expeditors for the past two years or more. As one buyer puts it: "Though the return to normalcy is still just a trend, it's gaining ground rapidly, and the purchasing agent can start to think again in terms of planned buying rather than where-the-devil-can-I-get-it?"

**What's "Normal"?** — For some firms with long run products, normalcy will mean higher inventories to take advantage of discounts on hitherto - unavailable quantities; but for others the inventory level will be dropping. Machine-tool-building National Acme Co., Cleveland, is a firm in the latter group.

"We're finding that we can meet our production schedules with 15 to 20 per cent less components inventory now that shortages are less numerous and delivery dates more certain," says Rex J. Gosling, purchasing agent. "A good exam-

ple of the improvement is motors and controls. A year ago delivery was running 30-50 weeks; now it's six to ten weeks. That permits us to keep more flexible and match our inventory to our orders as they fluctuate in intensity from one type of equipment to another."

**Still Some Ulcers** — Paradoxically, as the chart above shows, despite an approximately 14 per cent inflation in value since 1947, times of shortage tend to the highest inventories. Firms still coveting inventory cushions today are primarily those using cold-rolled sheet and structurals. One stove manufacturer reports a tight supply of cold-rolled stamped handles and enameling stock which run upwards of ten weeks for delivery when they can be found at all. Hence, he tries to keep at least ten-weeks' supply of handles on hand compared with his normal four-week inventory and struggles to hold his enameling stock at the 30-day limit with only moderate success.

With record steel production probable this winter (STEEL, Dec.

1, p. 47), shortages should loom less important in the inventory picture by second quarter and new ideas in inventory levels may get their first widespread trial in the near future.

**Delivery for Inventory**—The new concept largely substitutes precise delivery schedules for inventory. In pre-war days, inventory levels for the mass-producer were pegged at a 90-day minimum: 30 days in his plant, 30 days in transit and 30 days in his supplier's plant. With improvements in transportation, the 30-day transportation figure has been eliminated. With improvements in materials handling, such companies as the auto producers carry virtually no in-plant stock of most standard items. One fastener maker tells of his products going directly from receiving dock to assembly line in their original containers.

The same theory of maintaining the smallest conceivable inventory extends to refrigerator and lawn-mower producers and probably will be picked up by many other mass-producers in the near future. The advantages of low inventories are obvious, but they're contingent on a buyers' market and ready supply. Many observers feel 1953 may well be the year for both.



# EUROPEAN COMPETITION STRENGTHENS

## ITALY

**Mining and engineering supported Italy's industrial production index near last year's level. Prospects for 1953 depend on how well the Schuman pool alleviates raw materials supplies and whether exports are built up**

WITH this issue, the editors of STEEL begin a series of articles on what happened in 1952 and what's likely to occur in the economic futures of the major European countries. Next week, Dec. 15, we will deal with Belgium and France. Reports on West Germany and Great Britain will appear Dec. 22. A summary of the situation in Western Europe concludes the series on Dec. 29. Complete iron and steel statistics for all industrial nations will be carried in our 1953 Metalworking Yearbook issue, Jan. 5.

ITALY'S struggle to make prices of her metalworking products competitive with those of other European countries has not been entirely successful during 1952. For next year, Italy is pinning her hopes on "Trade, Not Aid" with the dollar zones and the Schuman Plan.

The record this year has not been entirely black, however. Efforts to maintain the lira have resulted in its being one of the most stable currencies in Europe. The lira's convertibility position has improved, too.

**Desired Rise**—Iron and steel pro-

duction have risen consistently, approximating the desired increases of Italy's four-year rehabilitation program. For the first nine months of 1952, pig iron and crude steel outputs were at an annual rate of 1.2 million and 3.9 million tons respectively. These were increases of 16 per cent and 15 per cent over 1951 figures. Next year further increases in iron and steel capacity will be added as the new integrated plant of Cornigliano comes into operation.

Shipbuilding yards have maintained relatively high production this year and expect to enter near-boomtime activity in 1953. A recently-approved plan by the Italian government for 17 tankers assures full employment at the 11 Italian shipyards for two or three years.

**Others Are Up, Too**—Some consumer goods lines have been working at high production rates. The motor-scooter industry, for example, is working at full capacity. Other industries which have boosted output in 1952: Food, metals, en-

## SWEDEN

**CONSTRUCTION** of apartment houses in Stockholm nears completion. Volume of construction in Sweden increased 10 per cent from 1951 to 1952

**Rise in iron and steel output helped balance slow-down in consumer goods. Over-all output slipped only 1 per cent from 1951. Metals production will continue growth in 1953; so will competition on finished products**

IN SWEDEN, as in many other European countries, the post-Korean boom has receded gradually since mid-1951. That pinched business in some sectors. And terms of international trade took a markedly unfavorable turn.

But, stabilization has aided iron and steel output and should con-

tinue next year to help Sweden realize her plant expansion program, started late in the 1940s.

**Some Fared Well**—In contrast to a slump in some consumer goods industries capital goods makers increased their employment, and output was up 4 per cent during the first six months of 1952 over the



like period in 1951. Net effect of these opposing trends was only a 1 per cent decline in total manufacturing and mining output for the same period.

With post-Korean stabilization, Swedish export prices declined by



# AS KOREAN BOOM FADES

gineering, oil refining, mining and electric power.

One of the darkest spots in the Italian picture is the changing terms of foreign trade. Value of imports went up by 7 to 10 per cent in 1952 over 1951, whereas the value of exports dropped by 13 to 15 per cent. The adverse effects amounted to more than 25 per cent.

**Always With Us**—Hard-core of unemployment, totaling about 2 million persons, continued in 1952, marking Italy as the European country with the highest unemployment rate. Prolonging that situation are Italian laws which provide almost prohibitive compensation among the penalties which an employer must pay to discharged employees. Employers are thus reluctant to hire employees now whom they may not be able to keep busy in future slack periods and whom they may not be able to fire, either.

Italians look hopefully to the Schuman Plan to help them solve their raw materials problem, par-



PIPE STORAGE AREA OUTSIDE THE DALMINE TUBE WORKS IN ITALY  
... pipelines reached Turin this year; Bologna and Genoa in 1953

ticularly coal and coke. After the opening of the common market for coal on Feb. 10, 1953, German coking coal should be more regularly available and at the same

prices as those prevailing in other countries. That will be a help in getting Italian metalworking products competitively priced for the common market.

about 34 per cent between December, 1951, and July, 1952. Import prices slid down only 6 per cent. However, export prices had jumped way up compared with import prices during 1950-51. Much of the 34 per cent decline is actually due to re-adjustment of prices of Sweden's two most important export products, paper and pulp, to more normal levels.

**Depression in Reverse**—The most striking effects of post-Korean stabilization in Sweden have been the favorable repercussions on iron and steel output. Reduction of employment in other manufacturing industries relieved the severe shortage of manpower in iron and steel works. The supply of raw materials improved compared with the previous year and was adequate for most works in 1952. Exceptions to that rule: scrap, nickel.

As a result of these factors, iron and steel output soared. The larg-

est increase took place in pig iron production where the plant expansion program is nearly complete. During the first eight months of 1952, pig iron output amounted to 720,500 tons compared to 568,700 tons for the same period of 1951.

**Steel Output Rises**—Production of steel ingots jumped 12 per cent, from 937,000 tons during the first eight months of 1951 to 1,048,000 tons during the same period of 1952. Output of rolled and forged steel rose by about 6 per cent to 668,000 tons.

Tight credit restrictions and uncertainty about future economic conditions have held back some industrial construction. But, an increase in building permits, a rise in employment and a reduction of the time of completion have worked together to affect a sharp increase in housing. This year, it's expected volume of home construction will be 10 per cent higher than in 1951.

Further gains are expected in 1953.

**Improved Supply** — Output has also risen in the engineering industry, the largest consumer of iron and steel in Sweden. Demand, however, tended to decrease late this year and some reduction of backlogs occurred in the mechanical and electrical equipment fields. The most important explanation of this development lies in sharper competition, especially from West Germany, and in added import restrictions imposed by many foreign countries. While a shortage of ship plates reduced output somewhat during 1951, no such difficulties were encountered during 1952. A similar improvement has taken place in the automotive industry.

Thus, the return to competition, both domestic and international, has had a salutary effect in general on Swedish metalworking, and most Swedish businessmen look for the trend to continue next year.



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# Mirrors of Motordom



## PONTIAC INTRODUCES DUAL-STREAK STYLING

... GM division spends \$30 million for tool-up and dies

**GM's Fisher Body Division reconsiders moving purchasers to Cleveland . . . New Pontiac is introduced with power steering . . . Willys-Overland Motors Inc. hearty at 50**

### DETROIT

FISHER BODY Division of General Motors Corp. is re-examining its plans for moving many of its Purchasing Division's activities to Cleveland.

That it had such plans was first disclosed in this column June 16, at which time it appeared that the move might be begun this fall. Recently the program had progressed to the point where the man who would head up the Cleveland purchasing organization had been designated, and the schedule called for activating the Cleveland office by about Jan. 1.

Now an "if"—Last week, however, a big "if" was interjected and the purchasing decentralization time schedule was postponed. One reason for the division's current uncertainty over the move is believed to be the reaction which many vital suppliers have had to it. They believe that Fisher's purchasing organization is a model of effi-

ciency as run in the General Motors Building in Detroit and can't understand how the operation will be further improved in the course of a move. The plan is not dead and might become active at any time; but for the moment at least the "why" askers have made the division take another hard look.

**Meanwhile, New Pontiac**—Invasion of power steering into the low-medium price market was begun last week as Pontiac Motor Division of General Motors introduced its '53 models mounting the GM Saginaw Steering Gear Division device.

Pontiac's "dual streak"-styled cars are completely new in their body and other sheet metal work this year, the tool-up and die cost being set at about \$30 million. Basic similarity of the new body to the '52s has been retained, indicating that the stylists in General Motors did not want to chance any radicalism with the now well-

selling Chevrolets and Pontiacs which share the same body.

**For Looks**—Appearancewise, the new models are highlighted by a large, one-piece wrap-around rear window, one-piece curved windshield, and a new side-contour blending the top of the front fenders into the rear.

Giving the rear fender a "kick-up," or flattened out-fin, adds a distinctive touch. A stainless steel rub rail extending from the rear tail light and through the doors joins with a slightly higher trim strip on the front fender.

**For Handling**—Mechanically the new Pontiac has undergone several notable changes, the emphasis primarily being on suspension improvements and easier steering. A completely new "curve attitude" to reduce the roll tendency of the car when cornering has been achieved by the front suspension changes including redesign of knee action lever and relocation of the pivot points.

Better handling was the goal of this engineering work, but a collateral gain has been in front tire life and lessened tire squeal when turning. A 10 per cent improvement in tire life is said to result when frequent curves are encountered. In addition to changes for curve control, the entire front suspension has been tilted about four degrees back from vertical so that the shock absorbers are better able to soak up jolts.

While steering has been improved by these front wheel changes, the effort required to steer has been further reduced by an increase in over-all steering gear ratio of three points to 25 to 1. Manual effort in the non-powered steering gear-equipped car is said to be 20 per cent less than in the 1952 model. Power steering, of course, would reduce it further.

**For Torque**—Engine changes in the six-cylinder car have been made to increase torque, the horsepower rating on this engine when used with Hydra-matic transmission remaining at 118 but the de-

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velopment of that power comes at a higher engine revolution. This change is accomplished by use of the same type dual carburetor as is used in the eight, a new intake manifold, new camshaft, combustion chamber change and use of aluminum, instead of cast iron, pistons.

## Willys: Rugged as Its Jeeps

The car and truck producer located 55 miles southwest of Detroit at Toledo is one of the several automotive companies which will celebrate its fiftieth anniversary in 1953. As Overland Motor Car Co. it introduced its first car from its factory in Indianapolis. Buying out Pope-Toledo in 1909 and moving its operations to Toledo in 1911, the company has had years of glory and years of despair. But as 1952 closes, Willys-Overland Motors Inc. is ready to begin its golden jubilee year with a flying start.

**Turning Point**—The company's re-entry into the conventional passenger car market last January with its Aero Willys series marked an important turning point. The filling out of the line with four-door models and other body styles during the next several weeks ought to make it more of a company to be reckoned with.

The adding together of Willys' car and truck output in the first ten months of 1952 puts the company into fifth place industrywide, two ranks higher than it had been in 1951. Its October production was the best it has had since before the war. Its 19,325 cars and trucks that month is no great shakes compared with most of the "big three's" divisions.

**Special Talents**—But in certain activities it is an outstanding performer. In exports of trucks Willys is in third place and in steel station wagons and four-wheel drive vehicles it is the industry's leader. It is the largest producer of forgings in the automotive industry. Its drop forge division at Toledo is the world's third largest commercial forging operation, and its aluminum forge division at Erie, Pa., ended World War II in the No. 3 spot.

Currently doing a \$300-million-a-year business, Willys would be ca-

## Auto, Truck Output

U. S. and Canada

	1952	1951
January	409,406	645,688
February	467,691	658,918
March	517,207	792,550
April	576,505	680,281
May	546,673	695,898
June	560,947	653,682
July	246,461	522,858
August	293,722	571,442
September	592,253	505,758
October	645,862	558,971
November	515,000*	480,199
December		402,729
Total		7,179,161
Week Ended	1952	1951
Nov. 1	155,037	118,743
Nov. 8	143,610	117,342
Nov. 15	146,825	120,767
Nov. 22	129,224	80,489
Nov. 29	115,395	119,962
Dec. 6	118,000*	116,932

Sources: Automotive Manufacturers Association, Ward's Automotive Reports. \*Preliminary.

pable of twice that volume with only minor additions to plant and equipment. Its growth since World War II has been marked by the pouring into plant improvement and expansion of \$40 million, and its diversification in defense products is greater than it was at the height of the last war.

**Seven Divisions**—The company operates seven divisions. Four—landing gear, electronics, automotive and drop forge—are at Toledo. The Wilson Foundry Division is at Pontiac, Mich., its aircraft engine division is at Anderson, Ind., in facilities also housing the electronic devices manufacturing. The aluminum forge division is at Erie. The automotive division also operates a final assembly plant at Maywood, Calif.

Largest operation is that of the automotive division which has more than 5.5 million sq ft. Its body shop has a 600-a-day capacity, and a new \$6-million stamping shop with 60 presses gives it greater self-sufficiency. Its engine assembly line has a capacity of 1200 four and six-cylinder units a day. It supplies Kaiser-Frazer with four-cylinder engines.

**Landing Gear**—The newest division—landing gear—is making a product which is no stranger for Willys. It was the sole source for Grumman Hellcat landing gears in 1942. But the division, quartered in over 400,000 sq ft in a \$10-mil-

lion plant, now specializes in landing gear and shock strut production. It is a subcontractor for the C-119 flying boxcar, the complete landing gear unit consisting of 325 parts of which 23 are W-O forgings. It will soon go into production of landing gear components for Beech Aircraft Corp.

The aluminum forge division consists of 12 major buildings comprising 345,993 sq ft, equipped throughout with machinery less than ten years old. Its size range of forgings runs from a half-ounce to 90 lbs. Its mammoth die shop enables the division to produce about 75 per cent of its own dies.

**Electronics**—The electronics division with a 38,000 sq ft product development laboratory at Toledo conducts its manufacturing in the Anderson, Ind., plant of 226,000 sq ft which is shared with the aircraft engine division. That plant consists of 11 buildings, valued at \$10 million.

All the electronic devices being produced are on the classified list, one being a jeep-mounted mine detector, two others for guided missile work, and the fourth for use with ground-radar installations. The aircraft engine division is currently producing jet turbine buckets and gears for General Electric's J-47 turbojet engine.

**Castings**—The Wilson Foundry, of more than 250,000 sq ft, produces 450 tons of gray iron castings daily in a \$9-million plant. It has seven molding lines on large castings including motor blocks, and two devoted exclusively to 90 mm steel cartridge case output.

The drop forge division, which is located in five buildings having floor space of 192,627 sq ft, is currently being expanded to more than double its present 96 million pound annual capacity. Two of its recently installed steam hammers, rated at 35,000 lb but beefed up to 42,000 lb, make up one-fifth of the number of such capacity hammers in the country. Three-quarters of this division's machinery has been acquired in the last six years. Its steel forgings go into jet plane airframes and engines, tanks, and, of course, Willys vehicles. Its automotive work for its own use takes only about 15 per cent of the plant's capacity.



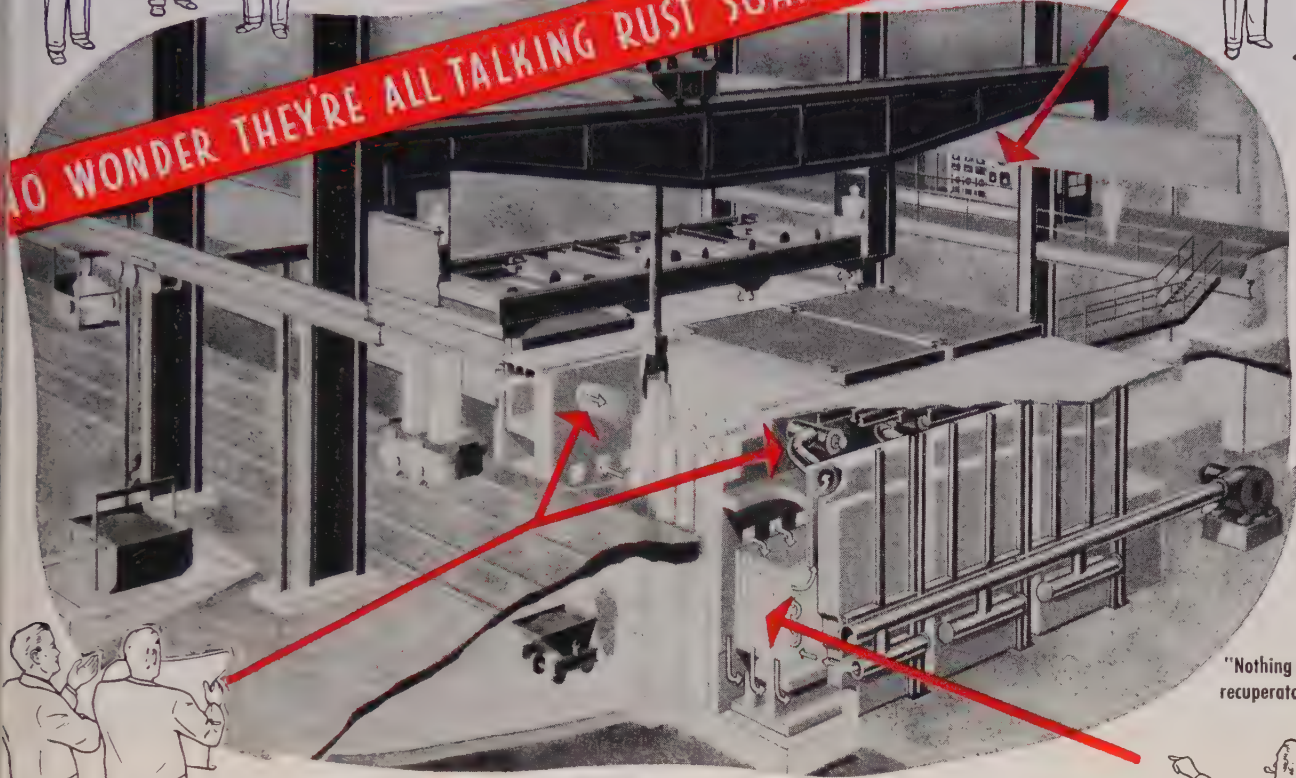


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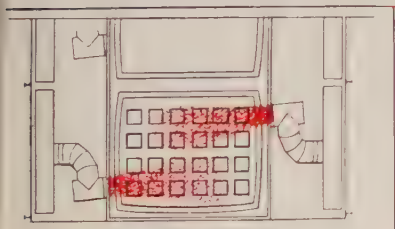
# RECUPERATIVE SOAKING PITS

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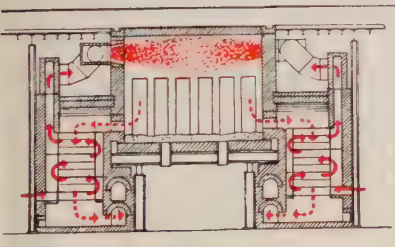
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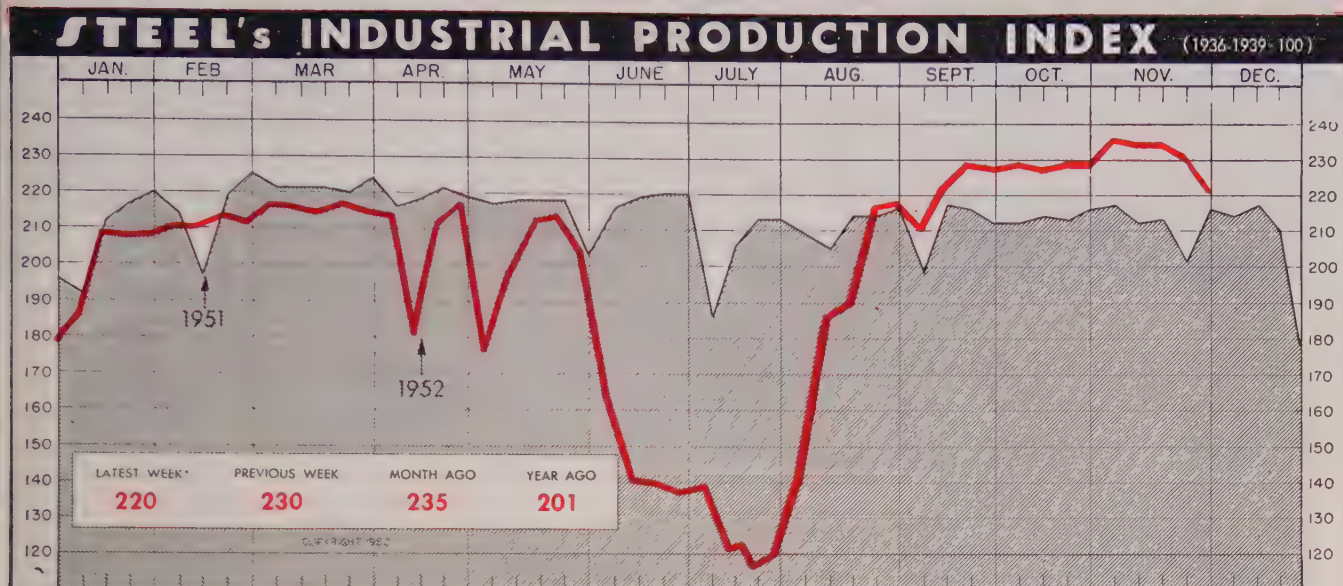
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# The Business Trend



\*Week ended Nov. 29

Based upon and weighted as follows: Steelworks Operations 35%; Electric Power Output 23%; Freight Car Loadings 22%; and Automotive Assemblies (Ward's Reports) 20%.

**Business is holding to a fast pace as it approaches the year end. Manufacturers' optimism rises as change of administrations nears. Index declines less than expected**

estimates that furnaces in the week ended Dec. 6 poured 2,191,000 net tons of steel.

**BUSINESS** is approaching the year's end at almost whirlwind velocity, but a brief seasonal decline will probably start sometime next week.

Many assembly lines are moving at record and near-record momentum, although most Christmas production is past. Prime reasons for this high activity are: Rising defense output, improved consumer spending and credit, the drive to recover production lost by the steel strike and expectation of better business conditions after Jan. 20, when the new President takes office.

**Mirroring**—Mirroring the output rise, the Federal Reserve Board's industrial production index in November climbed above the postwar record set in October. The board estimates that the November index rose 2 points to 229 per cent of the 1935-1939 average. This is 4.6 per cent over production in November, 1951.

Durables producers supplied the rise. Factories and mines since September have averaged about 3 per cent above the levels prevailing during the early months of 1952. Steel and television set production

are among the record-breakers. On the other hand, soft goods production is showing a slight decline—as textile mill activity was reduced following a marked recovery in the summer and early fall.

**Brief Dip**—Idle machinery during Thanksgiving lowered the nation's output, but not down to the levels expected. STEEL's industrial activity index in the week ended Nov. 29 dropped 10 points to 220 per cent of the 1936-1939 average. The index last year fell 12 points to 201 per cent in the Thanksgiving week.

Largest cutbacks during this holiday were in automotive production and freight car loadings. Electric power production fell less than usual, for cooler weather spread across many parts of the U. S. and required electricity for heating. Steelmaking remained at the previous week's level as furnaces poured right on through the holiday.

## Steel Output Heavy . . .

Predicting little lag in demand for some months ahead, steelmakers are maintaining record output. The American Iron & Steel Institute

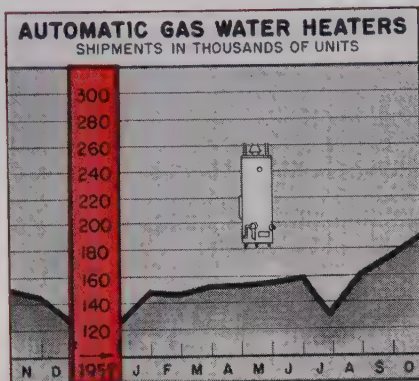
## Full Schedule for Autos . . .

Automakers are planning to end the year with a burst in operations, but the industry total will fall considerably under 1951. Passenger car output in the U. S. in November reached 397,000 units, and producers are laying plans for 410,000 vehicles in December, says *Ward's Automotive Reports*. This would bring the year's total for the U. S. to 5,338,809 vehicles, or more than 1 million units under passenger car assemblies in 1951.

Truck producers are also slated to boost output. Truck output in the U. S. in December is expected to attain 120,000 units, up 10,000 units from November. By Dec. 1, the industry rolled out 1,087,000 vehicles, or 243,500 units under truck production in the first 11 months of 1951.

Thanksgiving forced automotive production down, but some of the lost output was regained by overtime operations later in the week. U. S. companies in the week ended Nov. 29 turned out 108,670 passenger cars and trucks, compared with 123,531 units in the previous week. Canadian companies, celebrating their Thanksgiving earlier this fall,

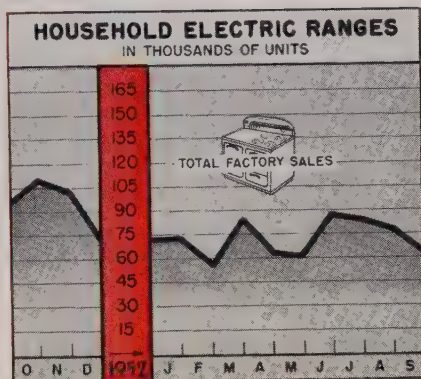




**Automatic Gas Water Heaters**  
Shipments in Units

	1952	1951	1950
Jan. ....	148,700	225,600	131,600
Feb. ....	145,800	213,400	156,500
Mar. ....	153,300	223,300	172,800
Apr. ....	153,300	199,400	176,400
May ....	155,300	167,400	195,200
June ....	159,000	131,500	207,100
July ....	131,300	102,400	197,500
Aug. ....	161,500	124,400	259,800
Sept. ....	177,300	130,900	222,600
Oct. ....	190,800	148,800	235,100
Nov. ....	.....	143,400	206,000
Dec. ....	.....	127,200	202,500
Total ....	.....	1,931,200	2,363,100

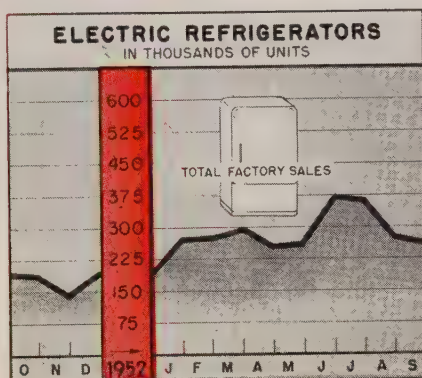
Gas Appliance Mfrs. Assn.



**Household Electric Ranges**  
Total Factory Sales—Units

	1952	1951	1950
Jan. ....	72,830	130,316	97,925
Feb. ....	55,728	121,585	118,989
Mar. ....	83,485	159,865	145,417
Apr. ....	62,746	118,823	132,859
May ....	61,209	106,685	145,498
June ....	88,063	106,589	158,534
July ....	84,325	60,530	130,505
Aug. ....	77,282	64,042	132,243
Sept. ....	64,260	93,551	156,216
Oct. ....	.....	109,043	130,452
Nov. ....	.....	101,476	129,384
Dec. ....	.....	72,140	124,360
Total ....	.....	1,244,645	1,602,382

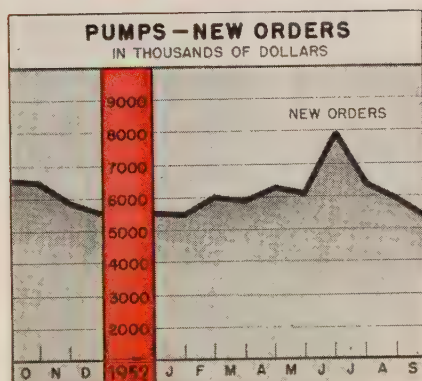
National Electrical Mfrs. Assn.



**Electric Refrigerators**  
Total Factory Sales—Units

	1952	1951	1950
Jan. ....	275,297	465,903	375,856
Feb. ....	277,986	403,035	461,256
Mar. ....	298,092	553,503	586,293
Apr. ....	255,009	409,887	546,279
May ....	256,378	309,722	542,856
June ....	374,199	261,298	549,740
July ....	366,372	163,922	507,029
Aug. ....	272,985	165,309	518,359
Sept. ....	257,362	193,929	535,002
Oct. ....	.....	191,519	420,431
Nov. ....	.....	147,394	411,201
Dec. ....	.....	195,403	394,268
Total ....	.....	3,465,824	5,848,579

National Electrical Mfrs. Assn.



**Pumps, New Orders**  
In Thousands of Dollars

	1952	1951	1950
Jan. ....	5,517	6,477	2,586
Feb. ....	6,020	6,480	2,938
Mar. ....	5,925	7,654	3,313
Apr. ....	6,354	7,583	3,376
May ....	6,140	6,371	3,668
June ....	7,957	6,852	4,153
July ....	6,299	3,358	4,080
Aug. ....	5,921	5,911	6,429
Sept. ....	5,258	6,552	5,191
Oct. ....	.....	6,506	4,985
Nov. ....	.....	5,908	5,961
Dec. ....	.....	5,553	6,720
Total ....	.....	80,175	53,400

Hydraulic Institute.

Charts Copyright 1952, STEEL.

**Issue Dates on other FACTS and FIGURES Published by STEEL**

Construction .....Nov. 24	Gear Sales .....Nov. 17	Radio, TV .....Oct. 6
Durable Goods ....Sept. 22	Gray Iron Castings..Nov. 3	Ranges, Gas .....Dec. 1
Employ. Metalwkg. Oct. 27	Indus. Production..Nov. 17	Steel Castings ....Nov. 3
Employ. Steel .....Nov. 10	Ironers .....Nov. 10	Steel Forgings ....Oct. 20
Fab. Struc. Steel...Oct. 27	Machine Tools ....Nov. 10	Steel Shipments ...Nov. 3
Foundry Equip. ....Nov. 24	Malleable Castings..Nov. 3	Vacuum Cleaners..Nov. 10
Freight Cars .....Nov. 24	Prices, Consumer ..Dec. 1	Wages, Metalwkg..Nov. 17
Furnaces, Indus. ...Nov. 24	Prices, Wholesale ..Dec. 1	Washers .....Dec. 1

pushed their output to 6725 assemblies from 5693 passenger cars in the previous week.

Combined U. S. and Canadian operations in the week ended Nov. 29 totaled 115,395 units, compared with 129,224 units in the previous week and 119,962 in the week ended Dec. 1, 1951.

## Steelworkers' Earnings Up ...

Steelworkers earnings in September soared to a new record, while the total industry payroll also attained a new peak. The American Iron & Steel Institute—basing its data on reports from 110 companies representing 95 per cent of the industry capacity—says average hourly earnings per wage earner in September rose to a record \$2.206, compared with \$2.139 in August. The total payroll of the entire industry is estimated at \$269.4 million, about \$19 million over August. Wage earners worked an average 40.3 hours a week in September, or 2.1 hours over the previous month. Total industry employment reached 673,600 workers, up 13,800 workers from August.

## Business Outlook Favorable ...

Business will continue good through the first quarter of 1953. That's the prediction of the National Association of Purchasing Agents in their monthly survey. The association's members report that their order backlogs are high, though not growing rapidly. Production in November followed this backlog pattern, a normal condition that has been absent during the inflationary spasms following Korea.

November prices showed more stability, although foreign weakness had some effect. Inventories continued downward as delivery promises became more dependable. Purchasers for industry still hold within a 90-day range for buying, although there is a gradual increase from 30-60 days to a 60-90 days policy. Employment continued its rise in November when more defense work moved from the tooling stage into production.

The result of the national election has showed little impact on orders, production and prices. The principal effect is psychological: Greater confidence that inflationary



## BAROMETERS OF BUSINESS

### INDUSTRY

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Steel Ingot Output (per cent of capacity) <sup>2</sup>	106.0	106.0	103.5
Electric Power Distributed (million kwhr)	7,600 <sup>1</sup>	7,971	7,476
Bituminous Coal Output (daily av.—1000 tons)	1,737	1,760	1,696
Petroleum Production (daily av.—1000 bbl)	7,200	7,971	6,232
Construction Volume (ENR—millions)	\$203.0	\$269.9	\$179.3
Automobile, Truck Output (Ward's—units)	115,935	129,224	119,962

### TRADE

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Freight Car Loadings (unit—1000 cars)	732 <sup>1</sup>	810	822
Business Failures (Dun & Bradstreet, number)	127	167	148
Currency in Circulation (millions) <sup>3</sup>	\$30,152	\$29,842	\$28,742
Dept. Store Sales (changes from year ago) <sup>3</sup>	+9%	0%	+6%

### FINANCE

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
Bank Clearings (Dun & Bradstreet, millions)	\$17,833	\$20,300	\$14,919
Federal Gross Debt (billions)	\$267.2	\$265.1	\$259.5
Bond Volume, NYSE (millions)	\$18.8	\$26.0	\$13.5
Stocks Sales, NYSE (thousands of shares)	8,112	9,602	6,743
Loans and Investments (billions) <sup>4</sup>	\$77.2	\$77.0	\$72.7
United States Gov't. Obligations Held (billions) <sup>4</sup>	\$31.9	\$32.0	\$31.5

### PRICES

	LATEST PERIOD*	PRIOR WEEK	YEAR AGO
STEEL's Weighted Finished Steel Price Index <sup>5</sup>	181.31	181.31	171.92
STEEL's Nonferrous Metal Price Index <sup>6</sup>	213.2	214.7	234.9
All Commodities <sup>7</sup>	110.1	110.3	113.7
All Commodities Other Than Farm and Foods <sup>7</sup>	113.0	113.0	114.6

\*Dates on request. <sup>1</sup>Preliminary. <sup>2</sup>Weekly capacities, net tons: 1951, 1,999,035; 1952, 2,077,040. <sup>3</sup>Federal Reserve Board. <sup>4</sup>Member banks, Federal Reserve System. <sup>5</sup>1935-1939=100. <sup>6</sup>1936-1939=100. <sup>7</sup>Bureau of Labor Statistics Index, 1947-1949=100.

pressures will ease; prices and materials will be decontrolled. Several reports to the association indicate that pigeon-holed expansion and new product plans are being dusted off and reviewed.

### Heating Equipment Up . . .

Shipments of gas-fired furnaces, boilers and conversion burners in October set a two-year record, reports Gas Appliance Manufacturers' Association. Furnace shipments totaled 61,800, a 51 per cent jump in October over the like period in 1951. Boiler shipments rose 49.3 per cent over the year to 10,300 units in October, while shipments of gas conversion burners in October rose 37.3 per cent over the same 1951 month to 31,300 units.

### Appliances Hit Peak . . .

Demand is rising from the cellar, if not the kitchen. While stove and refrigerators decline, manufacturers of home laundry equipment are finding the consumer desires their products more than ever. The American Home Laundry Manufacturers' Association says that factory sales of household washers in October were the largest since March and sales of automatic tumbler dryers hit an alltime high. October washer sales totaled 327,-

814 units, compared with 368,445 washers in March, 1951, and 15.5 per cent ahead of unit sales in September. The record October dryer figure was 83,510 units, an advance of 16.8 per cent from September and a whopping 90.9 per cent over sales during October, 1951.

### Rubber Consumption Climbs . . .

As automotive production skyrocketed in October, consumption of new rubber followed suit. The Rubber Manufacturers Association says that new rubber consumption in October increased 11 per cent to 117,285 long tons from 105,262 long tons in September. Consumption of natural rubber increased 15 per cent to 44,630 long tons. Synthetic rubber climbed 9 per cent to 72,655 long tons.

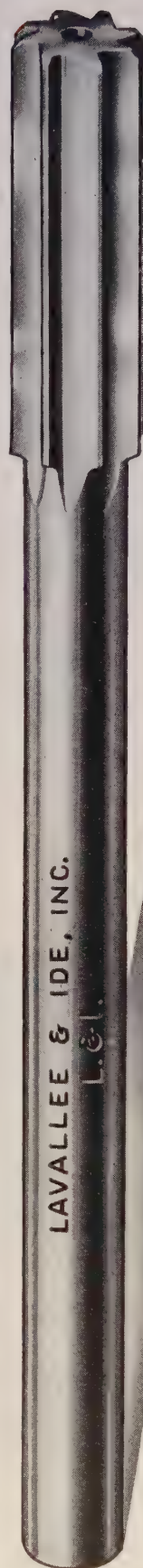
### Trends Fore and Aft . . .

Strikes in October cost 3.5 million man-days. The bituminous coal strike caused about 25 per cent of this loss . . . Construction activity in the states east of the Rockies during October rose 24 per cent over October, 1951 . . . Demand for crude oil in September totaled 6,462,000 barrels daily. This is 56,000 barrels a day below production.

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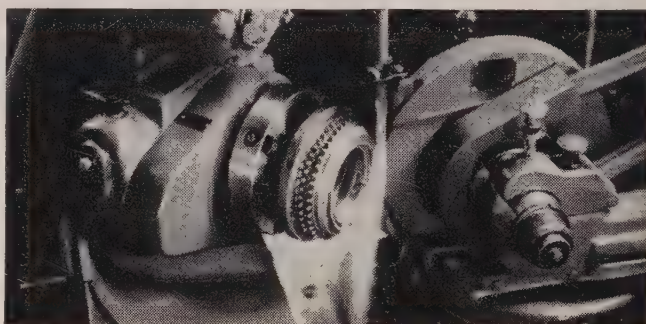
For any machining operation where an oil of its type can be used, Sunoco Emulsifying Cutting Oil will boost production, reduce downtime for cleaning and tool dressing.

A self-emulsifying petroleum product, S.E.C.O. forms a stable white emulsion when mixed with water. Its cooling and lubricating qualities make it particularly effective in the high-speed precision machining of ferrous and nonferrous metals. S.E.C.O. keeps machines clean, has a pleasant odor, and prevents rusting of parts between operations.

For complete information about S.E.C.O., write SUN OIL COMPANY, Philadelphia 3, Pa. Address Department S-12.

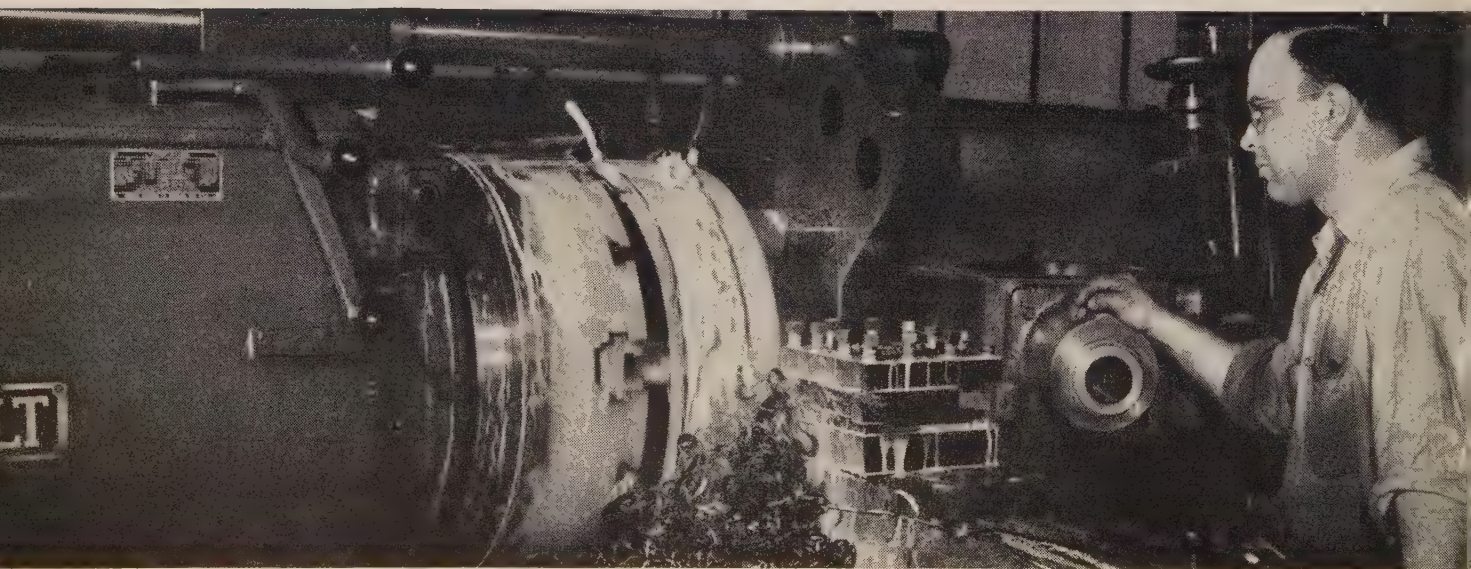


**MACHINE:** 2" automatic tapping machine • Parts: pipe fittings  
Metal: malleable iron • Operation: threading and chamfering 1½" 45° elbow • Cutting Speed: 75 sfm • Tools: high speed • Production: 306 pieces per hour • Cycle Time: 11¾ seconds • Cutting Oil: 1 part S.E.C.O. to 10 parts water



COURTESY BROWN & SHARPE MFG. CO.

**MACHINE:** Brown & Sharpe No. 2 Universal Grinding Machine  
Part: screw machine spindle sprocket • Metal: AISI-C1107 • Operation: grinding 90° included angle • Method: plunge-cut ground periphery of wheel • Grinding Oil: 1 part S.E.C.O. to 40 parts water



**MACHINE:** Gisholt turret lathe, model 4L • Part: 20" press mold shell, 22½" O.D., 6" depth, 20½" I.D. • Operation: turning and boring rough forgings • Materials: 40 to 50 carbon steel • Tools: Firthite carbide • Feed: .012 at 31 rpm • Cut: ½" to ¾" on O.D. and boring • Cutting Oil: 1 part S.E.C.O. to 10 parts water

## SUN INDUSTRIAL PRODUCTS

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# Men of Industry



**JOHN B. CRAIG**  
... American Bridge purchasing dir.



**J. E. PERRY**  
... Continental Can plant mgr.



**CHARLES S. NORTHEN**  
... V. P.-sales, U. S. Pipe & Foundry

John B. Craig was appointed director of purchases, American Bridge Division, U. S. Steel Co., Pittsburgh. He succeeds Dan Hamerschmidt, retired after 52 years of service with American Bridge. Mr. Craig has been assistant purchasing agent.

Harry C. Mason succeeds George W. Clarkson, resigned, as New York district manager, Whitman & Barnes, division of United Drill & Tool Corp. Mr. Mason formerly was a sales and service engineer working out of the Chicago office. Joseph Rodecker, sales representative in the Buffalo area, transferred to the West Coast with headquarters in San Francisco. He takes over the territory formerly covered by the late B. F. Rohde.

Flour City Ornamental Iron Co., Minneapolis, elected as officers: Henry J. Neils, chairman and treasurer; W. R. Westphal president; Carl R. Schuler, J. A. Hallberg and Clarence Seidel, vice presidents; Henry E. Neils, secretary; and Cornelius H. Lucas, assistant secretary and assistant treasurer.

John E. Angst, sales agent for American Car & Foundry Co. in Chicago, was appointed assistant western sales manager. He continues headquarters in Chicago.

J. E. Perry becomes plant manager of Continental Can Co.'s metal container plant at Syracuse, N. Y. He joined the company in 1943 and prior to his present assignment was eastern division manager of quality control.

Cribben & Sexton Co., Chicago, appointed Alan T. Mann manager of advertising and sales promotion to succeed John J. Brandt who resigned to enter business in Detroit.

John K. Northrop, president, Northrop Aircraft Inc., Los Angeles, has retired after 36 years in aviation. Oliver Echols, chairman of the board, will also serve as president of the company.

Harnischfeger Corp., Milwaukee, promoted William S. Burdick as vice president-engineering. He had been chief engineer for large excavators.

Dr. Robert Adler was appointed associate director of research for Zenith Radio Corp., Chicago.

Herbert E. Brumder was made general manager, Downingtown Iron Works, Downingtown, Pa., division of Pressed Steel Tank Co. Milton F. Kroesch was named chief engineer of the Milwaukee operations of the company.

Charles S. Northen, vice president-sales, Sloss-Sheffield Steel & Iron Division, was elected to the same position with United States Pipe & Foundry Co., parent concern, Burlington, N. J. Robert E. Garrett, assistant to the president of Sloss-Sheffield, was made vice president and comptroller of U. S. Pipe. Mr. Northen assumes the position held by D. B. Stokes, retiring after 42 years with the company.

Samuel Horelick has retired as chairman of the board of Pennsylvania Transformer Co., Canonsburg, Pa. He formed the company in 1929 in co-operation with W. E. Kerr. Mr. Horelick served as president until 1949 when he became chairman.

Furnace Engineers Inc., Pittsburgh, elected James B. Shea president and C. R. McCloskey as executive vice president.

Harold C. Piper, with Borg-Erickson Corp., Chicago, since 1936, was elected vice president in charge of manufacturing.

In the production department of Jones & Laughlin Steel Corp., Pittsburgh, W. P. Getty was made general manager of steel works; C. C. Henning, general manager of ore mines and quarries; and E. R.



Cooper, general manager of coal mines.

**Jack O. Abney** is the new associate works manager for **Penn Metal Co. Inc.**, in charge of research and development at its Parkersburg, W. Va., plant. He formerly was with the Chevrolet Division of General Motors Co. in Indianapolis.

**Philip H. Kreuscher** joined **Tube Reducing Corp.**, Wallington, N. J., as divisional engineer. He had been with U. S. Steel Co. as design and construction engineer.

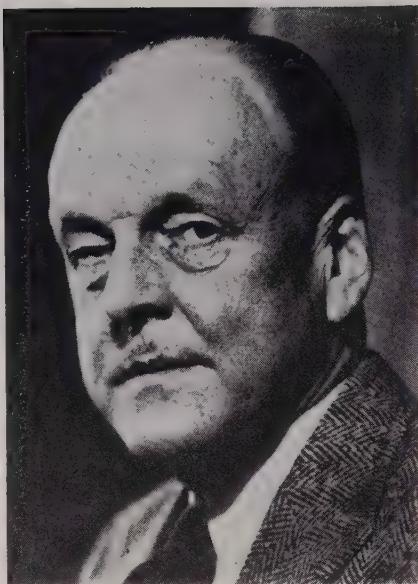
**J. W. Roche** was made assistant general superintendent of **Kaiser-Frazer Corp.**'s flight test department, Willow Run, Mich.

**J. Clark Ryan** was elected president and treasurer of **Forbes & Wagner Inc.**, Silver Creek, N. Y. He succeeds the late **Henry C. Forbes**. Mr. Ryan has been executive vice president.

**Flexitallic Gasket Co.**, Camden, N. J., appointed **A. T. Erickson** executive vice president. He previously was with **Day & Zimmermann Inc.**, engineers, Philadelphia.

**H. L. Richardson** was named divisional sales manager to head the Pittsburgh office recently opened by **Research Corp.** It will service western Pennsylvania and West Virginia and will handle engineering services in that area.

**American Safety Razor Corp.**, Brooklyn, N. Y., elected **Wesley A. Songer** vice president and general manager of operations. He previ-



**E. PAYSON BLANCHARD**  
joins **Morey Machinery Co. Inc.** New York,  
as director of sales, **New Domestic Machinery**  
Div. Noted in **STEEL**, Dec. 1 issue, p. 72

ously served as a principal of the management consulting firm of **Rogers, Slade & Hill**. Prior connections include both the appliance and merchandise department and executive department of **General Electric Co.**

**Fremont L. Rogers** becomes director of industrial relations at **Karp Metal Products Co. Inc.**, Brooklyn, N. Y. He formerly served in the same capacity with **Durez Plastics & Chemical Co.** and **Colts Mfg. Co.**

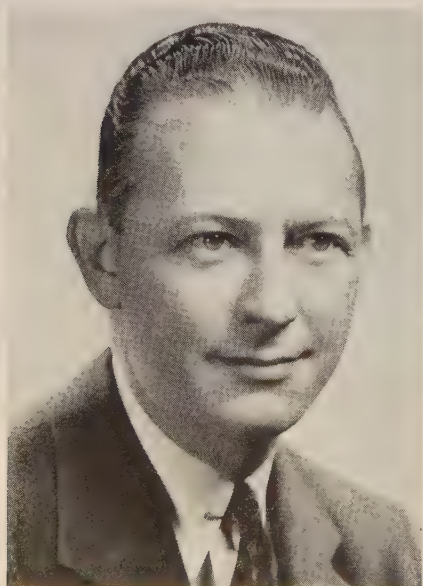
**Woodrow W. Oliver** was appointed Cleveland district purchasing agent, **American Steel & Wire Division**, U. S. Steel Co. He succeeds **Otto C. Langenhan**, retired after

45 years of service in the purchasing field. Mr. Oliver goes to his new post from **Worcester, Mass.**, where he has served for two years as eastern district purchasing agent for the division. He is succeeded in that position by **Elmer R. Johnson**, assistant district purchasing agent at **Worcester**.

**Jack H. Gill** was appointed assistant manager, industrial division, in the general sales department at **Caterpillar Tractor Co.**, Peoria, Ill.

At **Whitney Chain Co.**, Hartford, Conn., **W. H. Whitney** retires as president but continues to serve as chairman in which position he will be active in over-all direction of the company's policies and affairs. **Richard F. V. Stanton** becomes president-general manager. He will be active on the board and will also serve as chief executive officer of both **Whitney Chain** and **Hanson-Whitney Divisions**. Mr. Stanton recently resigned as vice president in charge of manufacturing at **American Machine & Foundry Co.** where he served in various capacities for the last four years. Previously he was vice president and assistant general sales manager, **Pratt & Whitney Division**, **Niles-Bement-Pond**.

**A. F. Siers** was appointed director of motor truck engineering, **Twin Coach Co.**, Kent, O. He previously served as chief development engineer in the company's truck division. He now will be in charge of engineering details relative to



**WESLEY A. SONGER**  
... joins **American Safety Razor Corp.**



**WOODROW W. OLIVER**  
... **AS&W** Cleveland purchasing agent

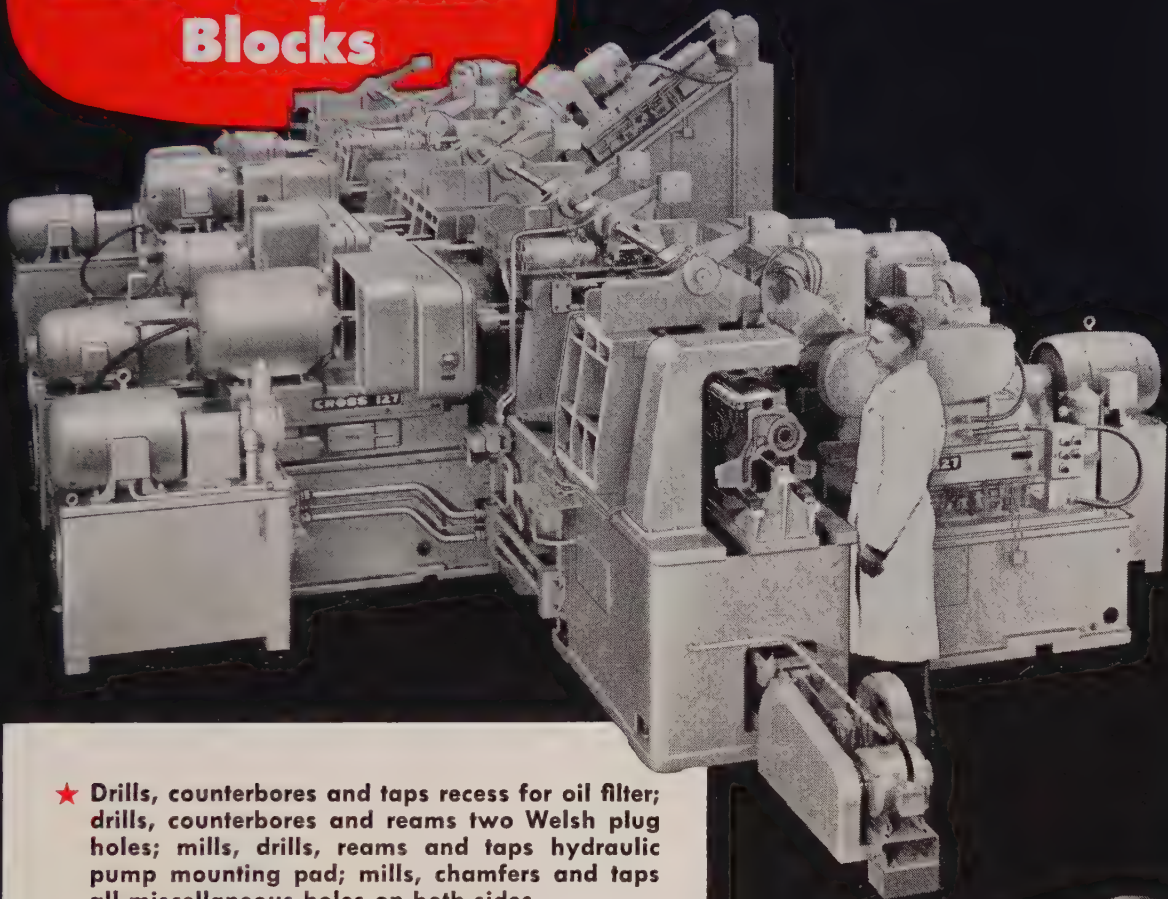


**A. F. SIERS**  
... motor truck eng. at **Twin Coach**

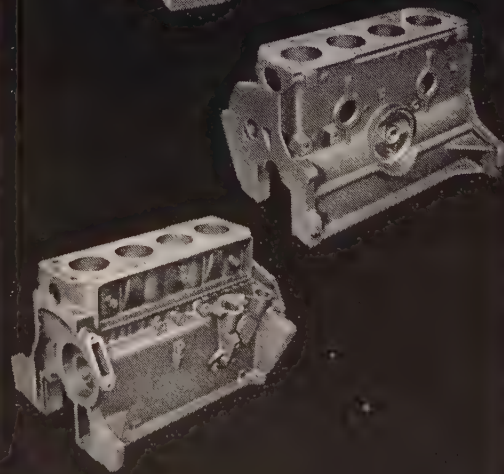


# Mills, Drills, Bores and Taps Tractor Cylinder Blocks

*Another Transfer-matic by Cross*



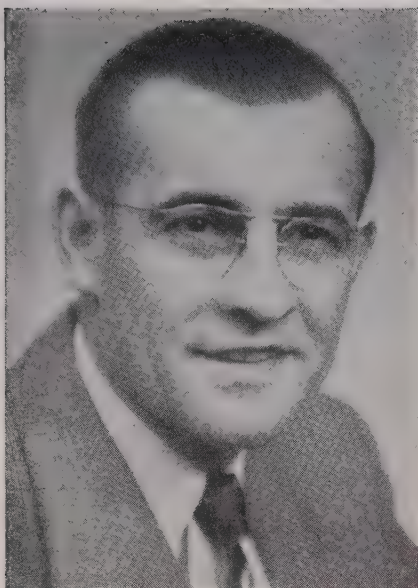
- ★ Drills, counterbores and taps recess for oil filter; drills, counterbores and reams two Welsh plug holes; mills, drills, reams and taps hydraulic pump mounting pad; mills, chamfers and taps all miscellaneous holes on both sides.
- ★ 71 pieces per hour at 100% efficiency.
- ★ 13 stations—one for loading; one for milling; six for drilling, boring and reaming; one for tapping; four for inspection.
- ★ Hydraulic power operated transfer mechanism moves work from station to station.
- ★ Other features: Construction to J.I.C. standards; automatic chip conveyor; automatic air-oil tap lubricating and cleansing with each cycle; automatic, gravity operated cam clamping; automatic retraction for milling cutters during return stroke.



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THE **CROSS** CO.  
DETROIT 7, MICHIGAN  
*Special* MACHINE TOOLS





**ERNEST W. MARCHAND**  
... V. P.-operations, *Evans Products*

Fageol Super Freighters and Fageol Vans, new truck lines recently introduced by the company.

**Ernest W. Marchand** was elected vice president in charge of operations, **Evans Products Co.**, Plymouth, Mich. He goes to Evans from Highway Trailer Co., where he held a similar executive position.

**Myron W. Krueger** was elected vice president and **Henry A. Federa** secretary of **Raymond Concrete Pile Co.**, New York. Mr. Krueger continues as treasurer and a director. Mr. Federa formerly was secretary, general attorney and a director of **Orinoco Mining Co.**, U. S. Steel Co. subsidiary.



**WILLIAM D. LAMONT**  
... div. sales mgr. at *Liquid Carbonic*

**Liquid Carbonic Corp.**, Chicago, appointed **William D. Lamont** as sales manager of its Gasweld Division. Before joining Liquid, Mr. Lamont was president of **Detroit Industrial Welding Co.**

**William T. Stephens**, formerly vice president-general manager, **Valve Service Co.**, Willoughby, O., has joined **Parker Appliance Co.**, Cleveland, as staff engineer in charge of the development program of industrial hydraulic equipment.

**Loren C. Miller** was appointed assistant works manager, **Bliss Steel Fabricating Division**, **Austin Co.**, Cleveland. For the last year he has been in charge of structural design at Bliss.



**WAYNE H. KUHN**  
... *Fairfield Eng. gen. sales mgr.*

**Wayne H. Kuhn**, formerly contract division sales manager, **Fairfield Engineering Co.**, Marion, O., was appointed to fill the newly created post of general sales manager. **W. R. Reichenstein** takes over as sales manager, contract division. He formerly was chief engineer and is replaced in that position by **Bruno Rybicki**, who has been with U. S. Steel Co. as chief design engineer, coal division.

**C. B. Campbell** was appointed consulting engineer and **J. R. Carlson** as manager of engineering for the steam division of **Westinghouse Electric Corp.**, Pittsburgh. Mr. Campbell has been manager of engineering since 1944.

## OBITUARIES...

**Thomas W. Greene**, 57, development engineer of **Linde Air Products Division**, **Union Carbide & Carbon Corp.**, New York, died Nov. 29. He was the author of many technical papers on welding and stresses.

**Marvin S. Jacques**, 50, retired president, **Alloy Steel Gear & Pinion Co.**, Joliet, Ill., died Nov. 26 on a train en route to Joliet from Florida.

**Harold M. Thorell**, 50, sales manager of **Trade-Wind Motorfans Inc.**, Los Angeles, died Nov. 19.

**William E. Robertson**, 86, a pioneer in civil engineering, died Nov. 10

at his home in El Paso, Tex. He founded the **El Paso Bridge & Iron Co.** and was president of **Virginia Bridge & Iron Co.**, now a subsidiary of U. S. Steel Co.

**Ralph A. Kappen**, 61, assistant superintendent of the production control unit of **Globe Steel Tubes Co.**, Milwaukee, died Nov. 26.

**Olin M. Richardson**, former assistant to the vice president in charge of production of **American Machine & Foundry Co.** in Richmond, Va., died recently.

**Gunnar E. Karlstrom**, 49, general manager, **Christensen Diamond Tool Co.**, Detroit, died Nov. 22.

**William Parker**, 65, manager of the

Charlotte, N. C., district of **Allis-Chalmers Mfg. Co.**'s general machinery division since 1938, died Nov. 24.

**Kenneth B. Lewis**, 69, a designer of wire mills in this country and abroad, died Nov. 26 of a heart ailment.

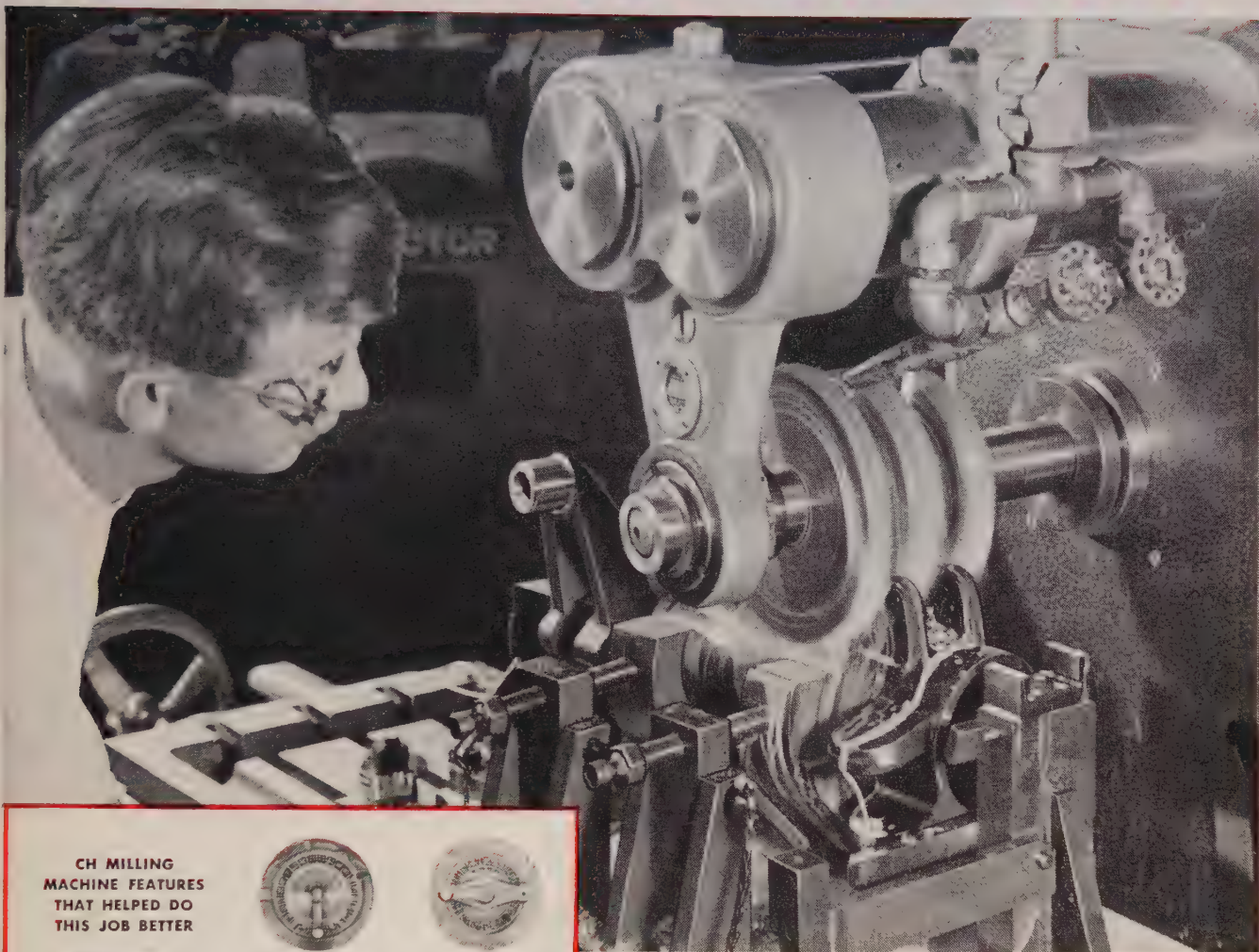
**E. C. Jarvis**, 68, president and one of the founders of **Jarvis Engineering Works**, Lansing, Mich., died Nov. 4.

**John L. Petitt**, 50, assistant manager of purchases for **Eaton Mfg. Co.**, Cleveland, died recently.

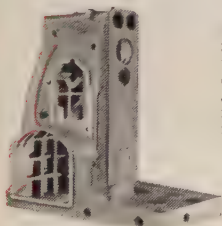
**Mark L. Burrell**, 66, director of purchases for **Federal Motor Truck Co.**, Detroit, died Nov. 24.



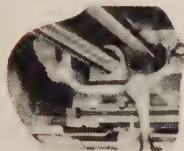
# CH MILLING MACHINE COMBINES SPEED, ACCURACY AND POWER



## CH MILLING MACHINE FEATURES THAT HELPED DO THIS JOB BETTER



**Greater rigidity —**  
Heavily ribbed,  
box section, spon-  
son construction.  
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**Smoother feed performance**  
through a heavy duty 2"  
dia. table feed screw. 23%  
greater bearing contact be-  
tween screw nut for longer  
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**Speeds and Feeds—24** speed changes  
from 15 to 1500 rpm. Automatic procto-  
mesh mechanism permits non-  
clash shifting during speed changes.  
32 changes from  $\frac{3}{8}$ " to 90" per  
minute meet requirements of new  
metals and cutting tools.



**Greater cutting efficiency**  
through a train of heavy duty,  
wide-faced, forged steel gears,  
hardened and specially pro-  
cessed.



**Greater horsepower —** in-  
dependent drives for spin-  
dle, feed and rapid trav-  
erse, and coolant. 15 hp  
to spindle . . . 3 hp for  
feed and rapid traverse...  
 $\frac{1}{4}$  hp for coolant.

## Here's a job handled on a new CH-4 Machine

**Job:** Menasco Mfg. Co., Burbank, Cal. Straddle Milling Drag Links

**Machine:** No. 4, Model CH, Plain Style

**Part:** Shock strut for landing gear cylinder

**Cutter:** High speed steel inserted tooth

**Cutter Speed:** 18 rpm, 15/32 ipm feed

**Chip Load:** .005"

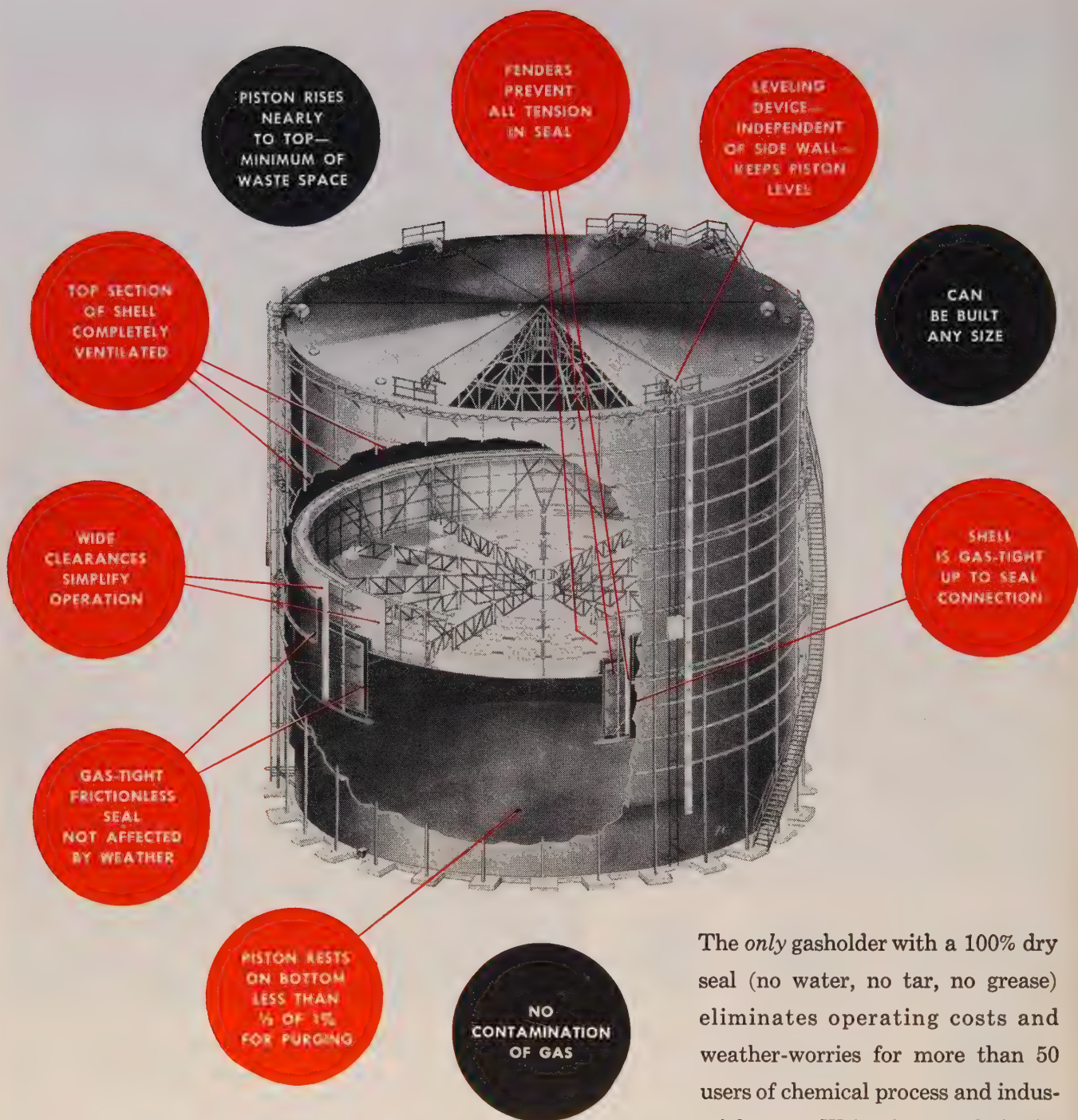
**Material:** 4140 Steel forging, 43 Rockwell

Investigate the new CH line of milling machines. These and other features are job proven to give you cost-cutting results plus greater productivity, better finished products. Contact our nearest representative or write: Kearney & Trecker Corp., 6784 W. National Avenue, Milwaukee 14, Wisconsin.

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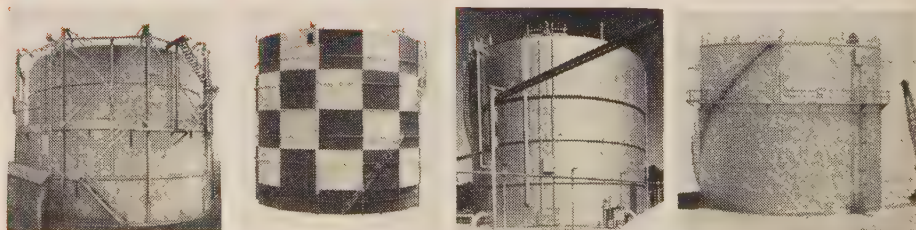


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**LOUDSPEAKER CLUTCH**—A clutch developed for instrument applications by the National Bureau of Standards works on the same moving coil principle as the electrodynamic loudspeaker of an ordinary radio receiver. It is activated by application of direct current to a coil located in a constant magnetic field. Force resulting from the interaction of the coil current and the magnetic field moves the coil and causes the clutch output disk to be pressed against the rotating input members. In the experimental model full output shaft torque of 10 ounce-inches maximum was attained in less than a third of a millisecond.

**TOUGHER ALUMINUM**—Two new alloys being made by Alcoa are highly resistant to corrosion and designed particularly for use in welded assemblies, tanks and highway transportation equipment. Both alloys, XA54S and XC56S, permit using section thicknesses half or less than those required by other aluminum alloys commonly used for the same jobs. Both alloys are weldable using inert gas metal arc process or the semiautomatic inert gas metal arc process. Welds are ductile and have high elongation.

**LOOKING FOR TROUBLE**—Handling orders that would be migraine to most plants is the bread and butter of American Silver Co. Instead of a tonnage basis they operate on poundage. When they were told to convert from jewelry to defense or go out of business, they found their production rate of 30 fpm was hardly a production rate. With some new equipment added, notably a Sendzimir mill, the precision rolled thin metal is coming out of the plant at 300 fpm. Here's the story of a firm whose business is the manufacture of thin strip—most men's poison. p. 94

**GLASS FOR DIES.**—The Ugine Sejourner process may extend its field of influence beyond extrusion of steel shapes. Several die stamping companies are casting an interested eye in direction of glass lubricants. They want to investigate possibilities of using glass lubricants to prolong die life.

**SCRAP ON THE MOVE**—At Fisher Body's Grand Rapids plant a gigantic and intricate scrap conveyor system removes a half million pounds a day into balers and on into freight cars. Backbone of the system is the main conveyor, 1145 feet long. Twenty collecting conveyors tunnel under the rows of presses and feed the main line. The total belt footage of the main conveyor exceeds 2300 feet. Collector conveyors have an aggregate belt length of 4769 feet.

p. 100

**WATER ACTIVATED BATTERY**—A special battery evolved by a British firm is designed to replace

the dry cells normally used for lifebuoy lights. It can stand for years without attention in all climatic conditions and is activated only after the lifebuoy is launched. A soft soldered strip is torn away just above the battery compartment permitting water to enter when the unit hits the sea. Dry charged plates are housed in an open end plastic container and are activated when they come into contact with either fresh or salt water. Capacity is sufficient to keep the lamp burning for six hours. Manufacturing costs are low, battery is not re-usable.

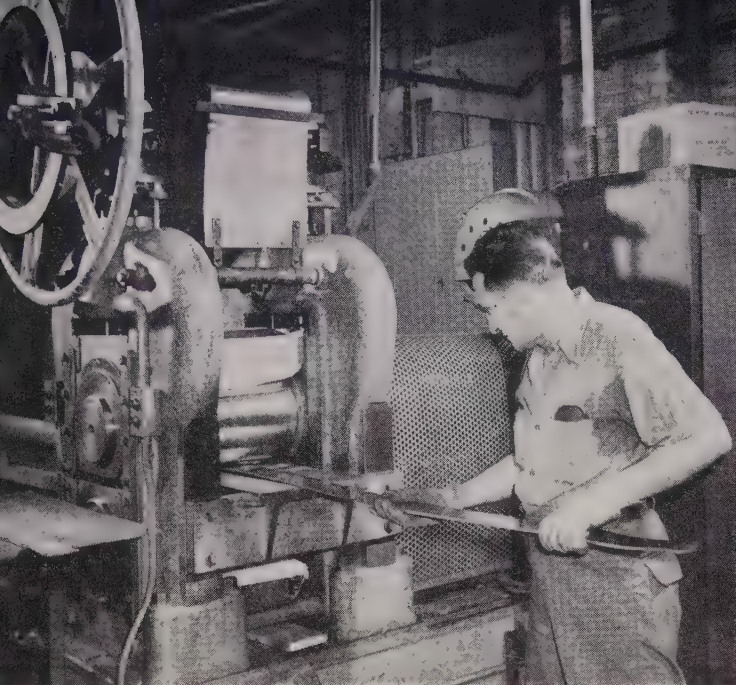
**NEED ANY INDIUM?**—Indium metal is used in applications that are highly specialized but important to many branches of industry. General tone of a report indicates that more of the metal will be available. Chief application of the metal has been in aircraft sleeve bearings. Preliminary investigation indicates that the use of indium in ferromagnetic Heusler alloys may prove to be a promising field. Indium additions to titanium give some increase in strength with a slight decrease in ductility. It is possible usable titanium-indium base alloys can be developed. p. 98

## ELECTRONICS AND STEELMAKING—Kaiser Steel Corp. is using a beta-ray gage on the continuous rolling line at its Fontana plant. This non-contacting gage continuously and automatically monitors the thickness of the tin plate as it passes through the line. General Electric and Kaiser engineers also introduced an improvement on the sheet classifier whereby different flights of the classifier can be shut down and jogged to clear up a cobble; then re-accelerated without shutting down the line. This greatly reduces the amount of plate formerly damaged when the line had to be stopped.

**CORROSION INHIBITOR**—Automatic fire extinguishing systems on aircraft save lives of many pilots and minimize damage to the planes themselves. Until recently there has been a drawback due to the corrosion of aluminum tubing that carries fluid to vital points after actuation, particularly in the low points. Aluminum has to be used since weight is an important consideration. Purging after discharge didn't guarantee freedom from chemical attack. A new inhibitor that eliminates the corrosive effect of CB fire extinguishing liquid on aluminum tubing through chemical stabilization is being included in all shipments by a leading fire extinguisher manufacturer.

**BELT SAVER**—Worn out and loaded abrasive belts used for grinding everything from aluminum to stainless are being reclaimed by pressure blasting. While specific figures are not available, it is estimated that the worn belts can be used again for half their original life.





Breakdown mill starts with metal bars 1½ inches long in mill lengths and rolls them down to 0.075-inch snakes



Intermediate mill is a 2-high unit that rolls the long snake down to a rough coil of metal 0.020-inch thick

## Custom Mill Tackles Production Headaches

**Handling orders for pounds instead of tons American Silver has built its business on jobs the big mills don't want to handle. Precision is their business**

By S. W. BAKER  
Associate Editor

MINIATURIZED metalworking may be mass production to a fabricator, but often it's a migraine to a purchasing agent and a nuisance to a rolling mill.

To turn out 100,000 instrument diaphragms from 0.0015-inch strip for example, only about 50 pounds of metal are needed. That 50 pounds must be rolled to exacting tolerances. Then too, engineering departments often dream up some tough size or tolerance of ultra-thin metal that isn't easily obtainable and blithely turn the specs over to the purchasing agent to fill. Here his nightmare begins: Most rolling mills won't take orders for less than 1000 pounds or for thicknesses below 0.005-inch.

**Wanted: Poison** — Someone was destined to build a business on these headaches. So it was that

American Silver Co., Flushing, N. Y., formed an industrial division to custom-roll ultra-thin and high precision strip. "Another man's poison is our food," is the way Monroe Sherman, American Silver's president, puts it. "We've collected under one roof unwanted business from every rolling mill in the country."

Parlaying misfortune into fortune by moving into a domain generally conceded to the industrial giants, this small company brought new bloom to its controls-wilted business of rolling metals for the jewelry, optical and pen-pencil industries. In this civilian field — where precision tolerances are mandatory — American Silver hit its stride in 1949 when it developed a process for producing a superior mirror finish on rolled gold. But

the guillotine dropped soon after Korea, when M-12 and M-14 restricted nonessential decorative use of metals.

**Denouement** — When NPA told him to convert to defense or go out of business, Mr. Sherman took stock of company facilities and their possibilities. He found standard commercial tolerances in jewelry metals were regarded as precision tolerances in electronics manufacture. And the bustling instrument, electronics and aircraft industries were continually finding new ways to miniaturize their products—many of which required ultra-thin strip.

Transition to custom rolling wouldn't be easy, the company found. Equipment on hand was much too slow. Mills rolling jewelry metal (from 100-ounce ingots)



run at only 30 fpm—hardly an industrial rate. They could produce strip only 4 inches wide, while industry demanded double that width.

**Buying Spree**—Armed with an Air Force priority, American Silver went after the equipment needed. Key purchase was a model ZR 15-8½ Sendzimir cold strip mill that can roll strip stock from 3 to 8 inches wide at 300 fpm. About a dozen of these 12-high units are in use today, but this installation is the only one devoted exclusively to custom rolling, says A. I. Nussbaum, Industrial Division manager.

The model ZR 15-8½ can roll strip down to 0.0005-inch from a maximum starting thickness of 0.060-inch. Number of passes required and thinness obtainable depend on the metal rolled. Electrical alloys for example can be rolled to between 0.001-inch and 0.0005-inch, while 70-30 brass can easily be rolled to the maximum thinness. A typical reduction schedule—on 302 stainless annealed at 0.008-inch—reads like this, in mils: 8, 5, 4, 3, 2.6, 2.2, 1.8, 1.4, 1.2, 1.0.

**Beefed Up** — Because company must work with a wide variety of strip metals, special features were incorporated in the Sendzimir. Mill power had to be adequate for taking heavy passes at high speeds on such hard-to-work metals as stainless and beryllium copper. Thus both mill and winder drives were equipped with 20-hp motors—most powerful drive to date on this size and design Sendzimir. Manual control is used to attain infinitely variable speeds from 0 to 300 fpm. Model has no controlled acceleration or deceleration system.

Tension control system features a Reliance V-S drive that maintains tension at any value between 100 and 3000 pounds—a 30:1 ratio. Tensiometer consists of mechanical linkage with a billy roll over which strip passes. Movement of linkage is balanced by compressed air cylinder unit. Desired tension is set by varying linkage ratio and adjusting air pressure over 0-80 psi range.

**No Hunting**—Electronic V-S unit controls winder motor torque. Signals come from reactor having iron core moving in relation to tensiometer linkage arm. Over full range

of available tension, no hunting is experienced, company finds. Weight capacity of coil is 100 pounds per inch of width, allowing an 800-pound maximum coil. Over the 10-inch steel drum winder a 24-inch maximum OD coil can be wound.

When mill is in operation, oil flows at a maximum 7 gpm through the compact safe-like housing from a 200 gallon tank in mill base. Oil viscosity at room temperature is 100. Strip wipers like welding hose are used on this machine. For rolling to sizes below 0.0005-inch (thicknesses below 0.0002-inch have been successfully rolled on a ZR 32-4 Sendzimir), a secondary lubrication system would be necessary to prevent heavy oil film from causing coil to telescope.

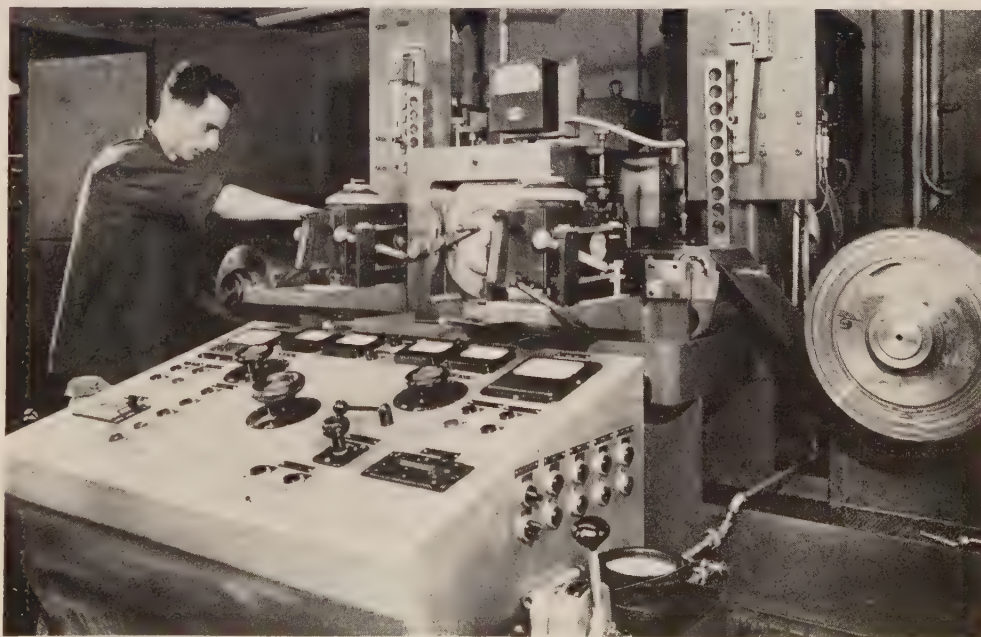
**Versatility** — The 0.468-inch diameter work rolls can be changed in less than five minutes. Selecting appropriate shape drive and work rolls is only adjustment necessary for handling different widths. The four drive rolls can be changed in ten minutes because of the cluster design.

With small work roll diameters, heavy reductions can be taken without intermediate anneals on hard-temper strip. If half-hard or soft tempers are ordered, strip is taken off mill, annealed and given final temper pass either on the Sendzimir or on a 2-high or 4-high mill. Company finds Sendzimir most eco-

nomical on 40 per cent minimum reductions to full hard temper rather than on slight reductions needed for lower tempers.

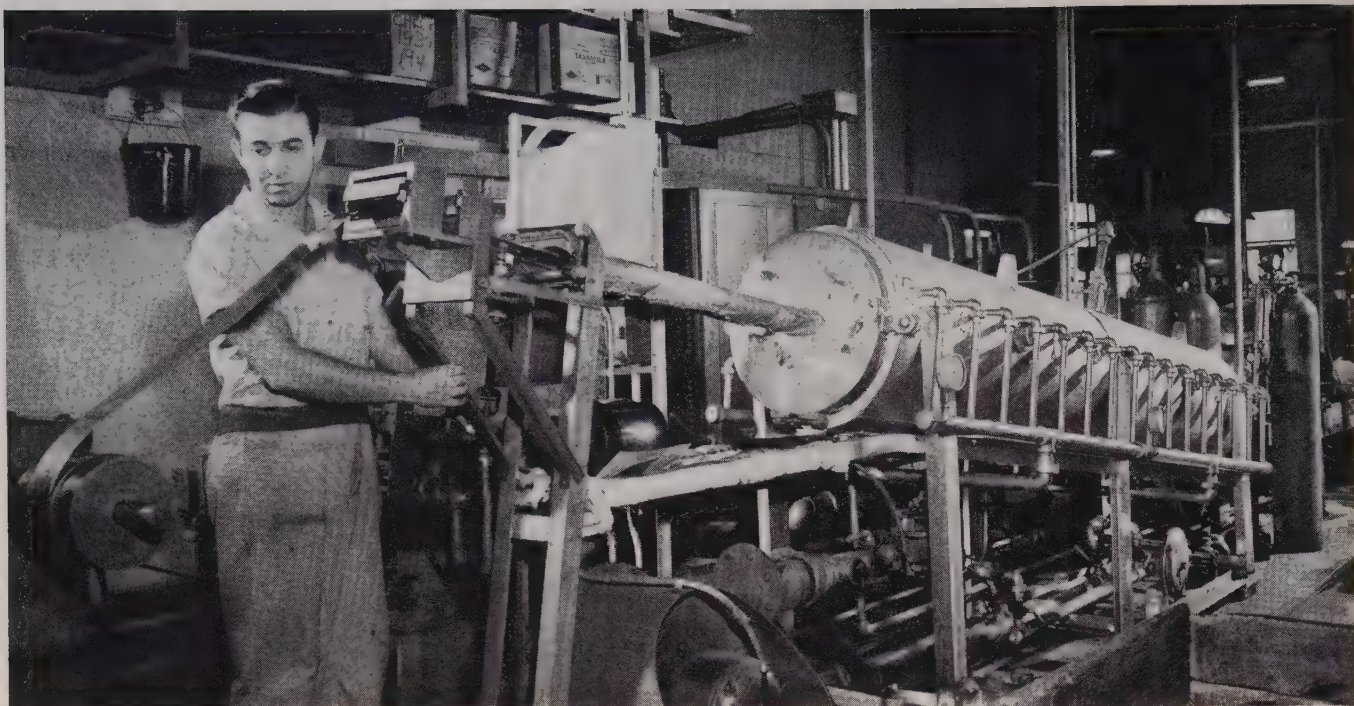
**Feeder Mills** — Supporting the Sendzimir is an array of 4-high and 2-high mills. For a runout or intermediate mill, a 4-high normal-reversing Fenn mill was added for rolling down to about 0.002-inch. Work rolls are 1⅞ inches diameter by 8 inches wide and backup rolls are 8 x 8 inches. Unit is powered by 25 hp on main mill and 10 hp on winder. Louis Allis Adjusto-Spede drive with eddy current clutch delivers infinitely variable speed range of 0 to 300 fpm with constant tension.

For a breakdown mill, a 2-high Standard Machinery Co. unit was selected. A powerful machine, it has a 30-hp constant speed motor and alternating current drive. Rolls are 10½ x 14 inches. Finishing mills are from Standard and from H. J. Reusch Machine Co. They have 5 x 8-inch rolls and can deliver 7½ hp at 30-70 fpm. Frequent roll changes, particularly on finishing passes, must be made to produce the near-mirror finish on the strip. Rolls get an extremely fine-grained finish and are generally super-finished on a special lapping machine. This operation is considered so vital a company secret Mr. Sherman won't talk about or show it to outsiders. Wiping



This cluster mill employs 0.468-inch work rolls. Strip, 0.002-inch thick is rolled down to thickness of 0.0005-inch with extremely tight tolerances





Annealing plays an important part in precision strip manufacturing process. All annealing is performed in continuous atmosphere type furnaces

pads, often soaked in alcohol or kerosene, lubricate work rolls and keep them clean, as even a fleck of dust could damage the finished product.

**Annealing's the Secret**—Several continuous atmosphere annealers and high-precision slitters rounded out the project. "Secret of preci-

sion rolling is annealing," says Monroe Sherman. "The same amount of heat must be put in every running inch of metal." Thus no ultra-thin strip is annealed in coils at American Silver.

Experimenting with annealing units, the company's engineers built one to specifications that takes

the strip continuously through gas chamber, water quench, acid dip and rinse. Heart of the device that pulls the strip through this process without marring the metal: A chain-driven Sears-Roebuck washing machine wringer.

**Ready To Roll** — Thus equipped the company started cold rolling to specifications such metals as stainless and high-carbon steel, brass, phosphor-bronze, invar, beryllium copper, nickel-silver and aluminum. Success is reported also in rolling titanium, tantalum, 40 per cent beryllium-aluminum alloy, zirconium and Ti-75A alloy.

Regularly rolled now are thicknesses of 0.0005-inch, to tolerance of plus-minus 0.0001-inch — about 100 times thinner than the vertical bar of the letter I in this type. Some conversion work comes in. It isn't solicited strongly, but taken on only as an accommodation to help someone work off high inventories or when the metal to be rolled can't be obtained elsewhere.

**How To Measure**—In establishing exacting tolerance limits, the company and its customer must first get together to decide how measurement is to be made. When rolling metal to one-sixth the thickness of a human hair, a slight difference in measuring methods can



Toy-like in size, this Sendzimir mill performs an important function in rolling ultra thin strip for instruments, electronic applications





Precision slitting equipment cuts precision rolled strip. Tolerances as close as  $\pm 0.001$ -inch can be obtained in widths from 0.125 to 9 inches

cause a large amount of trouble.

Pratt & Whitney Magnetic flying micrometers calibrated in 0.0001-inch divisions are used on the Sendzimir. To double check on the flying mikes—though found ideal for the job they fall off occasionally and need resetting—the inspection department makes use of Federal dial gage micrometers reading to 0.0001-inch.

**Oaks and Acorns**—Orders raining in today aren't big; it's the small ones on which this business thrives. It doesn't take much tonnage for a \$10,000 order to build up either. Tantalum for example, brings about \$100 a pound at 0.0005-inch. Delivery time averages about two weeks, whereas mills or warehouses often can't supply comparative special sizes for four or five months. Thus a telephoned order from California for two pounds of metal isn't startling. A typical order from the company's books reads this way: 10 pounds, 302 stainless, full hardened, 0.0095-inch thick, plus-minus 0.0002-inch by 2¼ inches wide, for Westinghouse Electric Corp., Sharon, Pa.

Heavy volume of shipments to-

day are for precision instruments, electronic bursting disks and magnetic cores. Ultra-thin gage cores for high frequency magnetic amplifiers or magnetic components in computer applications are a booming application. The thin metals allow reversing magnetization with rapidity required, retaining important magnetic properties of low coercive force and high permeability.

**Altered Techniques**—Some customers find they can save money by changing their manufacturing methods to take advantage of these

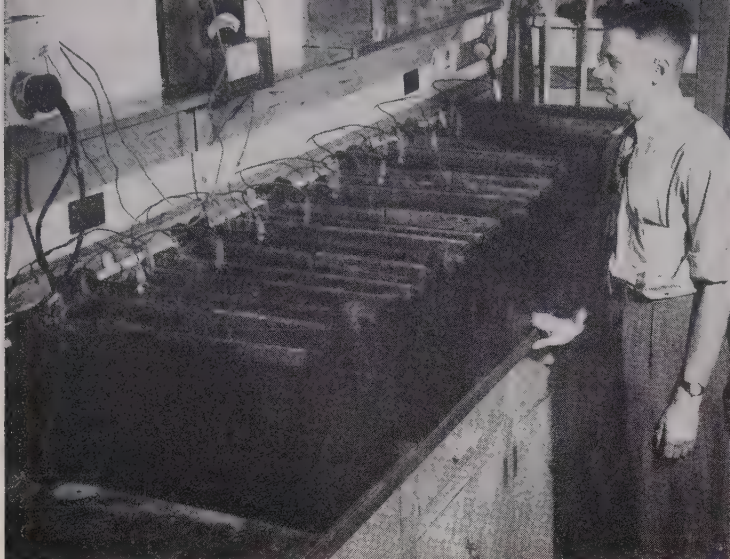
products. One fabricator that machined components to 0.001-inch by precision grinding now produces the same parts to commercial tolerances and makes up the difference with microshims in increments of 0.002-inch with a tolerance of  $\pm 0.0001$ -inch.

American Silver, naturally quite pleased with its new custom rolling business, won't have to pull in its horns like so many jewelry shop suppliers. It even has a certificate of necessity to expand its plant twofold.

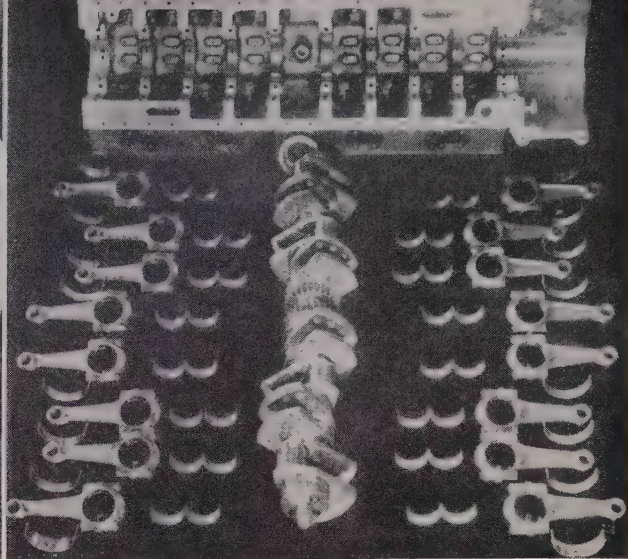


Some examples of material made from beryllium copper stock rolled to tight tolerances. Shown at left is a bellows diaphragm; right, contact springs





Semicommercial electrolytic refining plant for indium. Metal of better than 99.95 per cent purity is produced



Crankcase, crankshaft, connecting rods and bearings of 16-cylinder engine used in the British racing motor

## MORE INDIUM METAL...CAN YOU USE IT?

**Material has a number of current uses and potential future applications—New recovery method augments supply**

INDIUM METAL is used in applications that are highly specialized but important to many branches of industry. The silvery-white metal, with a color resembling platinum, finds its principal use in alloys with lead, tin, cadmium and bismuth for bearings, solders, and glass wetting materials.

More indium will be available. This is the general tone of a report presented to electrochemists attending a recent meeting of the Electrochemical Society in Montreal by J. R. Mills, Consolidated Mining & Smelting Co. of Canada, Trail, B. C. Increased availability may be the stimulant needed for more widespread use of the metal.

In the summer of 1946, a new and rich accumulation of indium was found to exist in a complex by-product at Consolidated's Trail smelter. This particular by-product was the major outlet of the indium which found its way into their co-ordinated zinc-lead smelter operation.

Immediately, it became evident that the treatment of this material would yield a sustained production of a considerable quantity

of indium, with a reserve available from a stockpile of the indium-rich by-product accumulated in past years.

**Getting It Out** — Methods of treating this by-product material have been worked out. They include electrothermic and electrolytic steps leading up to a final electrolytic refining to give indium metal of better than 99.95 per cent purity.

With the stockpile material containing a large reserve supply of indium, and the regular supply of about one million ounces of new indium entering the plants annually, Consolidated is in position to supply potential users with more indium.

There is no shortage of indium in the U. S. Here, the present annual consumption is estimated to be only about one-tenth of the estimated potential production of 500,000 ounces annually.

**Tin-Like**—The chemical properties of indium are similar in some respects to aluminum. In a general way indium resembles tin both chemically and physically more than any other metal. This is

demonstrated by the close association of these two elements in metallurgical processes.

Outstanding properties of the metal are its softness and low melting point. It is the softest metal that is stable in air. Also, it is resistant to alkali corrosion and adheres to smooth surfaces. These properties define the fields in which most of the present uses are found.

**Alloys Top the List**—Present-day uses for indium are based on its alloys, generally with the closely related metals, lead, tin, cadmium and bismuth. Indium alloys are not used where strength and high melting point are essential. However, these properties should be sufficiently high to meet the requirements of the applications in mind.

Indium-lead alloys have higher melting points than any of the others. Thus, in solders they have an advantage within a useful temperature range. Also, indium-lead alloys are the hardest and strongest over most of the range of alloy content.

Bismuth is the most effective



hardener for indium, followed by cadmium and then lead. Tin has the least strengthening and hardening effects. On the other hand, indium is most effective in hardening tin. Although less effective in hardening lead, since the solubility of indium in lead is so much greater, the maximum strength and hardness that can be attained in the lead-indium system is greater.

**Resists Alkalis**—Ternary indium-lead-tin solders have improved resistance to alkali. An alloy containing 47.5 per cent lead, 37.5 tin and 25 indium is a major improvement over the standard 50 lead 50 tin alloy in alkali corrosion resistance.

Indium additions of 1 and 2 per cent to a lead-base, 3 per cent silver soft solder increase strength markedly. However, indium does not improve the strength of lead-tin solders.

**Better Bearings**—Chief application of indium has been in aircraft sleeve bearings. In the Pratt & Whitney bearing, indium is plated and diffused on a steel-backed bearing, which has been previously plated with a layer of silver and then lead.

After a diffusion treatment for about 500 hours at 300°F, the concentration of indium at the surface is about 16 per cent indium, which corresponds to a solid alloy solution of indium in lead. This improves strength and hardness of the surface; however, these properties, although desirable, do not account entirely for the high standard of performance obtained with such bearings. Use of indium results in a marked improvement in corrosion resistance against organic acids in lubricating oils.

Indium diffused into a steel-backed cadmium alloy bearing improves corrosion resistance without impairing fatigue resistance.

The British racing motor, with 16 cylinders, turns at the high speed of 12,000 rpm. This engine uses indium in its bearings. These bearings consist of a mild steel backing strip, and a copper-lead alloy coating to withstand the stresses as it has a very high fatigue resistance. A diffused indium coating provides a low coefficient of friction, a good resistance to corrosion and a first-

## USES OF INDIUM

Sleeve bearings	Contacts
Low-melting alloys	Fuses
Glass-metal seals	Semi-conductors
Solders	Nuclear energy
Magnetic alloys	Coatings

class anti-seizure property.

Although a less costly lead-tin overlay is being used instead of lead-indium for some aircraft engine bearings, the anti-seizure property obtained with indium is apparently sufficiently outstanding that indium continues to be used in many of the finest engines.

**Low Melting Alloys**—A number of low-melting point alloys have been prepared containing indium. Addition of indium to Wood's metal alloys lowers their melting point by about 1.45°C for every 1 per cent of indium, with the lowest melting point at 47°C (117°F) for 19.1 per cent indium. These alloys are used for surgical casts, foundry patterns, fusible safety-plugs or links and in other applications where a low melting point alloy is required.

A 24 per cent indium, 76 per cent gallium alloy melts at 16°C (61°F) and is liquid at room temperature.

**Seals Metal to Glass**—An alloy containing equal amounts of tin and indium is used in glass sealing applications. This alloy is capable of wetting glass and of making glass-to-glass or glass-to-metal seals.

The alloy is first applied to the preheated glass by swabbing. Joints and seals may then be made

in the conventional manner.

It takes only a small concentration of indium to promote wetting of glass. Bismuth-indium, cadmium-indium, and indium-lead alloys which contain 5 per cent or more indium can be applied to glass and used for making joints. More indium is required in tin alloys, however. Lead containing as little as 0.5 per cent indium will wet glass.

Although recent work indicated that the high-lead, low-indium alloys might be an improvement in the glass sealing field, it has subsequently been shown that the tin-indium system produces vacuum tight joints with greater consistency. Indium-lead alloys, with their higher melting point, may have certain advantages in producing glass-to-metal seals in application where temperature is a critical factor. Resistance to cyclic thermal stresses set up by alternate heating and cooling between minus 60°F and about 200°F is good for both types of seals.

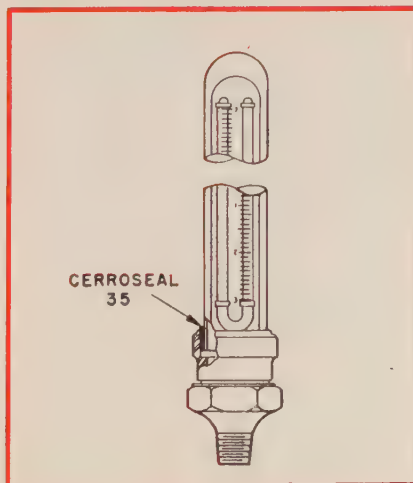
**Magnetic Use**—Preliminary investigation has indicated that the use of indium in ferromagnetic Heusler alloys may prove to be a promising field.

**Electronics** — Indium metal makes excellent low resistance contact with such oxides as titanium dioxide and barium titanate, and therefore may find use in piezoelectric units. Indium is said to be suitable for use as a counter-electrode in selenium rectifiers.

Although apparently unsuitable for contacts in telephone circuits, indium seems to have possibilities as a filler in graphite brushes for electric motors. Use of indium as a capacitor electrode appears to warrant investigation.

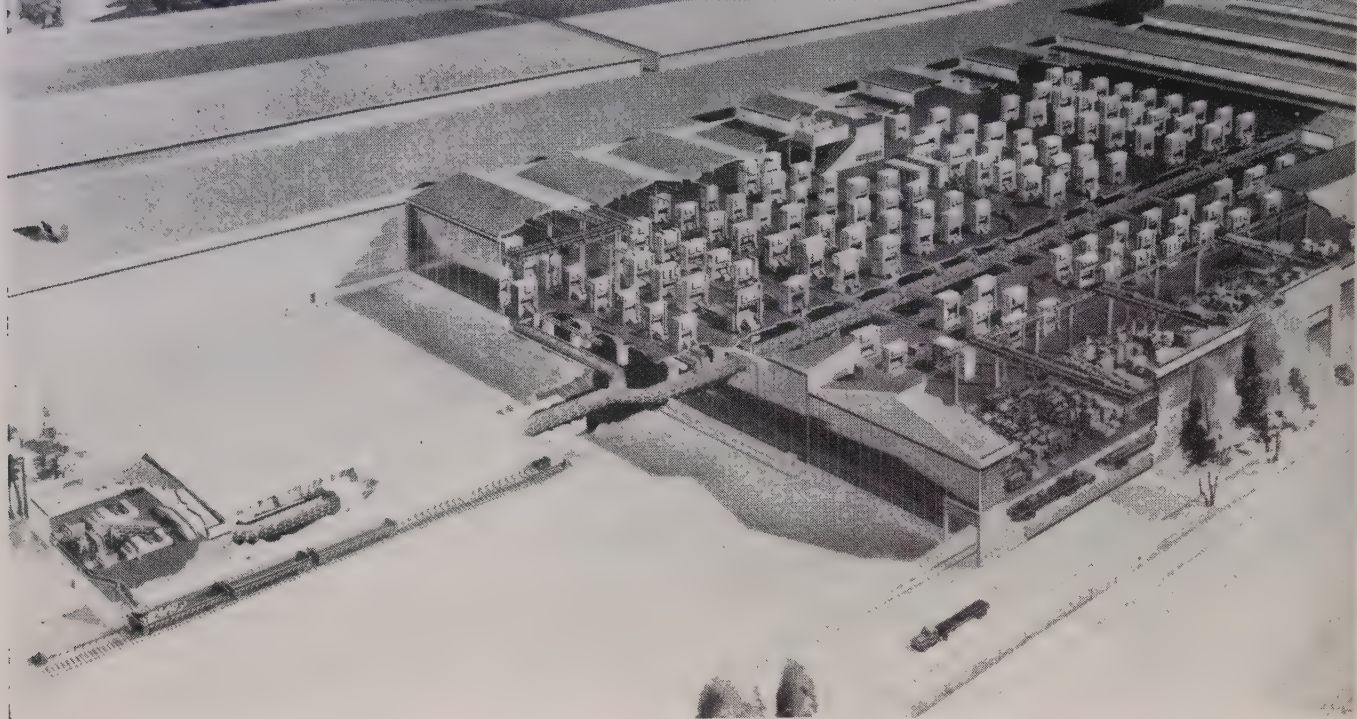
**Lubricants**—Addition of indium to lubricants as soluble compounds or as a fine suspension appears to be a promising field for further development because of desirable properties of the metal such as its softness and plasticity, ability to bond steel surfaces without diffusion or reaction, and also the ability of the indium to maintain lubricants in a noncorrosive condition paint.

**Atomic Energy Too**—Artificial radioactivity is easily induced in indium by neutrons of low energy. For this reason it is used as an indicator in atomic piles.



Pressure gage uses tin-indium alloy, Cerroseal 35, for glass-to-metal seal





Overall view of complete scrap baling system showing how scrap is collected from numerous presses, fed to main conveyor, baled, loaded on freight cars

## Conveyor Network Moves Press Scrap

**Continuous steel belt 1145 feet long forms backbone of the system taking the material from feeder network and dumping bales into freight cars outside plant**

By H. C. TUTTLE  
Detroit Editor

A MODERN-DAY Hercules, assigned to clean out the Augean stable of manufacturing, is using a system unmatched by anything in the world of scrap handling.

The man in the baler house at Fisher Body's Grand Rapids plant No. 1 controls a scrap conveyor line which originates more than a fifth of a mile away. He is the master of an intricate network of feeder lines which carries the offal away from the presses of this huge automotive stamping facility, mashes it into bales and drops it into freight cars.

**Gobbles It Up**—Capable of removing a half million pounds of scrap a day, the system was conceived and designed by the Central Works Engineering Section of the Fisher Body Division, General Motors. The conveyor was built by May-Fran Engineering Inc., Cleveland, and installed by Commercial Contracting Corp., Detroit.

Backbone of the system is the

main scrap conveyor, 1145 feet long and 4½ feet wide. Fabricated from standard 9-inch May-Fran links with the outside links having 6-inch high vertical wings, this continuous steel belting threads its way underground from the front of the plant through the rear, and up a steep incline to the second floor of the baler house.

**All Sizes** — Twenty collecting conveyors, ranging in length from 61½ to 165 feet, tunnel under the rows of presses at right angles to the main line. Construction of these is identical with the central unit but on a smaller scale. Standard 6-inch May-Fran links make up the 24-inch wide belting, the outside having 3-inch high wings to form the scrap channel.

Fed scrap by a chute from each of the presses above, these conveyors move the material along at speeds ranging from 15 to 45 feet per minute and spill it out onto the main conveyor through short chutes. The main conveyor trav-

els up to that maximum speed. The feeder lines have a normal carrying capacity of 30 pounds per lineal foot; that of the main stem is 40 pounds per lineal foot.

Main belt derives its power from two 10-hp motors geared by a Reliance variable speed drive with an 8 to 1 stepless range. The collecting conveyors, powered by 3 or 5-hp motors depending on length, have Reeves vari-speed pulleys of 3 to 1 ratio.

Total belt footage of the main conveyor is 2308½ feet. The collector conveyors have an aggregate belt length of 4769 feet.

**Built-in Flexibility**—May-Fran's unique hinged belt makes possible the transport of the wide assortment of scrap sizes which are generated by Fisher's dies. Generally, the dies are designed to shear the scrap into pieces 18 inches or shorter, and the sheets are blanked so carefully that few pieces of scrap are more than an inch or so in width. The individual links are



hinged by a solid bar running the width of the belt which holds each link in close contact with the others. The side wings are overlapped so that even when the belt runs over the end pulleys the scrap will remain in the channel.

Weight of the belt and its load is borne by an angle-iron framework attached to the floor, the top half of the belt rolling on small wheels on this frame. Lubrication for the main conveyor is directed to the underside of the belt at one point by a continuously operating Alemite Oil-Mist system.

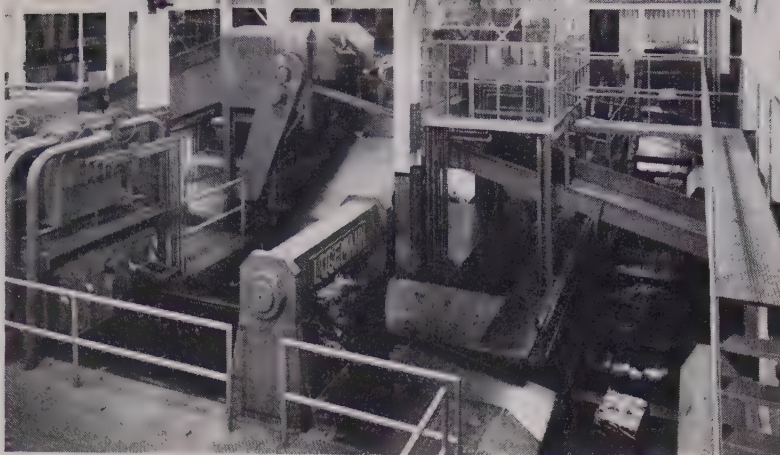
**Automatic Cut-out**—The main system is engineered to have a certain amount of slack in the returning portion of the belt. Anything which causes that slack to disappear requires attention, so a switch has been placed in the system to shut off power when the belt tightens to a predetermined point.

To get the scrap up the steep incline to the baler house, angle-iron cleats have been attached at regular intervals to the belt links.

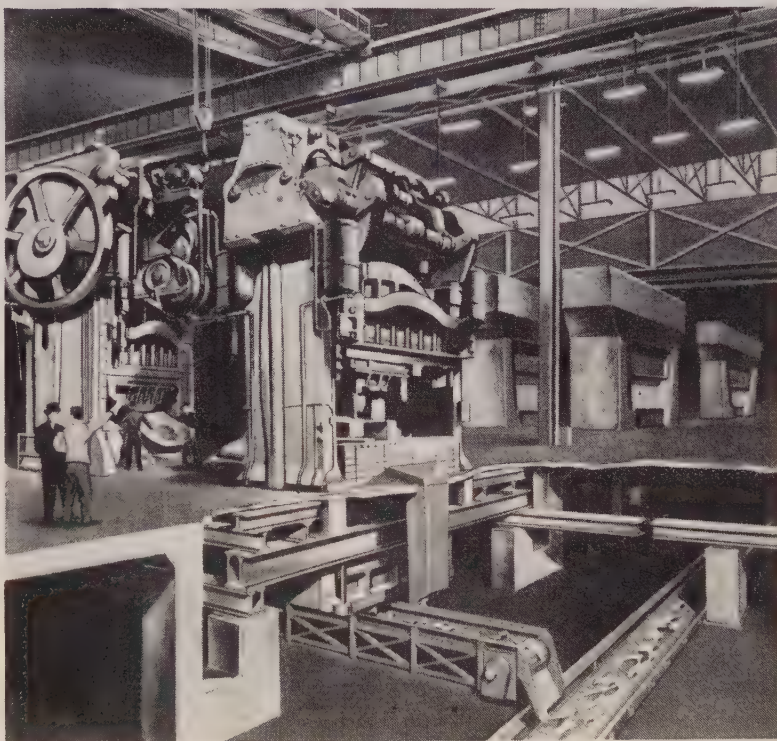
Once in the baler house, the scrap drops off the discharge end of the main conveyor into a tilting hopper, centered between two baler pits. Only one Logemann baler has been installed as yet, but plans call for two to handle the plant's peak scrap output.

At the operator's discretion he can pour the contents of the hopper into either one of these balers, the conveyor momentarily stopping until the hopper comes back into receiving position.

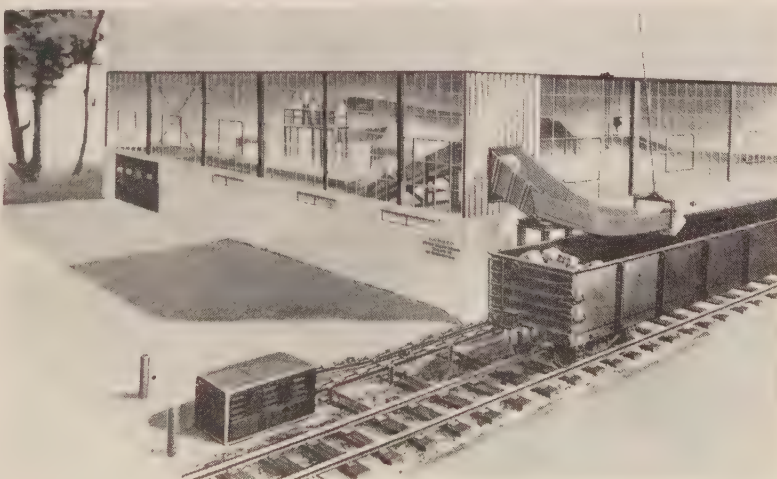
The baler, capable of exerting 2500 pounds pressure, compacts the loose scrap into a bundle averaging 24 x 16 x 16 inches and weighing between 600 and 800 pounds. This is ejected onto skids where it is pushed by box-like steel sections which are attached to two May-Fran side chains, driven by a 7½-hp motor. This conveyor, 53 feet long and 4½ feet wide, discharges outside the baler house into a gravity chute which drops the bundles into railroad gondola cars. To remove loaded cars and bring up empties, a May-Fran car-pulling conveyor capable of moving 300 tons at 6 feet per minute has been installed outside the building. The operator, from his pulpit inside, can position the cars for even loading.



Control booth in the baler house is the heart of the scrap collecting system at Fisher Body's Grand Rapids plant. The operator discharges the completed bale

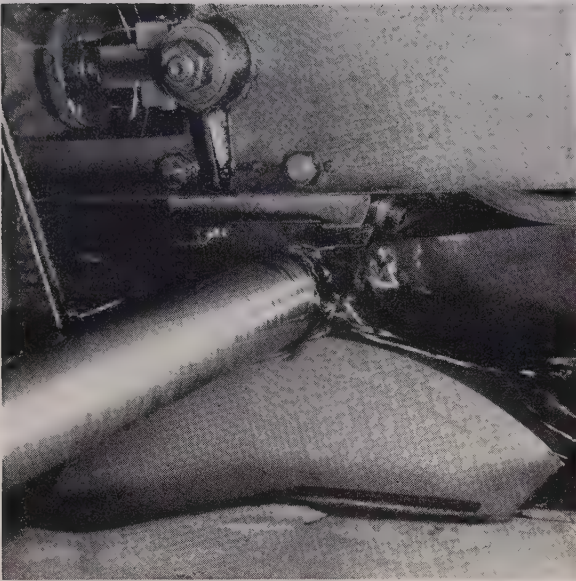


Cutaway view shows manner of discharging loose scrap from collecting conveyor onto main loose scrap conveyor

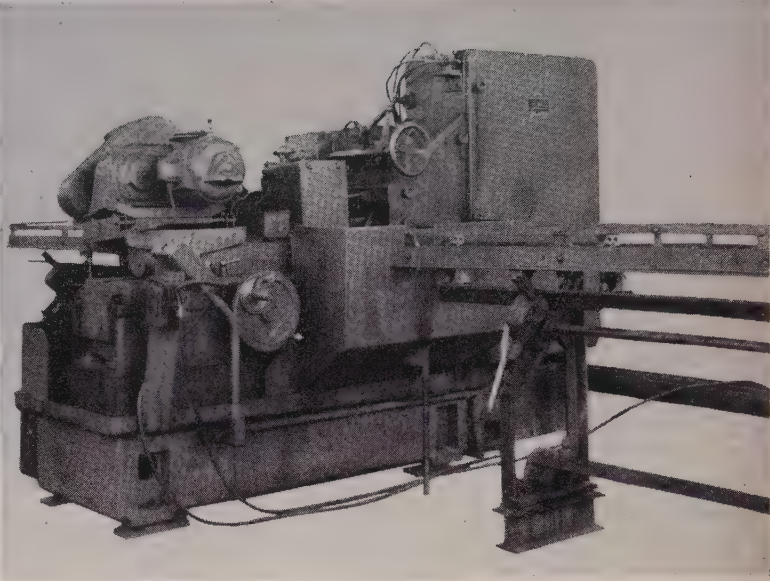


Scrap bales are loaded automatically into freight cars. Reversible car puller and conveyor unit is in foreground





Extruded tubing set in machine against metal contact wheel that doubles as drive pulley. Belt is waterproof



Overall view of machine used for grinding stainless steel and high alloy tubing prior to shipment to the B&W plant

# Centerless Belt Grinds Extruded Stock

**Method holds promise for fast grinding and rough finishing of bar and tube stock. Finishes down to 16 micro-inches are obtained with fine grit belts**

A POUND OF METAL a minute can be ground off stainless steel and high alloy tubing by a new process called centerless belt grinding. Developed to combat finish and taper problems encountered in Ugine-Sejournet extrusion (STEEL, June 2, p. 92), the process—using an abrasive belt rather than a wheel — holds promise for fast grinding and rough finishing of bar and tube stock and for punch cut work in competition with conventional centerless grinding.

First machine for this work is now undergoing tests at the Greenfield, Mass., plant of the builder, Production Machine Co., prior to shipment to Babcock & Wilcox Co.'s Tubular Products Division, Beaver Falls, Pa. Machine was developed in co-operation with Behr-Manning Corp., Troy, N. Y., who worked out the coated abrasive belt technique. B & W will put the unit to work about year-end removing taper (up to 0.020-inch per 15-foot length) in extruded tube and grinding off die marks and traces of the molten glass stocking that is used as lubri-

cant in the extrusion process.

**Fast Finish**—Cylindrical stock in sizes from 1 to 6 inches can be accommodated, and finishes down to 16 micro-inches are obtained with fine grit belts. Stock removal rate holds for all sizes of stock by adjusting feed through machine grinding belt speed and stock rotation. Tolerances can be held to plus-minus 0.001-inch.

Holding the fast-moving belt against the work under heavy pressure is a 375-pound steel contact wheel (20-inch diameter by 9 inches wide) that doubles as drive pulley. V-belt driven by 25-hp motor, machine has been operated to date at speeds of 3500 to 8500 sfm, says Raymond Coles, Production Machine's chief engineer.

**Belt-Regulated**—Workpiece feed rate infinitely variable from 0 to 30 fpm is attained through variable speed drive and regulator belt assembly adjustable for work feed angle of from 0 to 15 degrees. Used instead of the conventional rubber-bonded regulator wheel, this assembly features a waterproof cloth

feed belt coated with 220 grit aluminum oxide. Measuring 9 1/2 inches wide by 58 inches long, belt is backed by a rigid flat steel platen to provide uniform pressure across belt face and maintain dimensional accuracy.

Grinding belt is coated with 50 grit aluminum oxide and measures 9 inches wide and 168 inches long. Cutting oil—Stuart's 99—is fed to belt through recirculating system and manifold nozzle to lubricate belt and remove chips. Extra width on infeed side of regulator belt starts workpiece rotating before it contacts grinding belt. Work rest is offset toward grinding belt side to maintain and control pressure between workpiece and regulator belt. Work feed angle can be changed at any time.

Maximum belt use hasn't been determined yet, but Production Machine has gotten as much as 40 pounds of metal to a belt in test operations thus far. The company believes automatic feeds and other refinements will broaden the process' and the machine's applications.

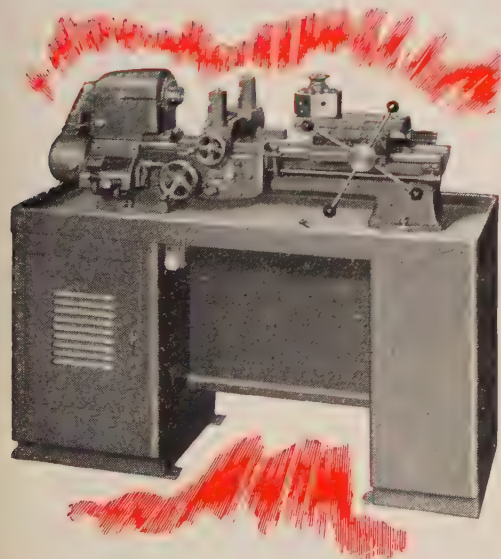


speaking of  
**ECONOMY...**



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**QUICK CHANGE GEAR TURRET LATHE**  
11" Swing, 1" Collet Capacity,  
1 3/8" Spindle Hole, 43 1/8" Bed

**NO OTHER LATHE** of comparable specifications can match the Logan in economy. Low power cost is only one reason why industry likes the Logan. It is easily set up for every type of lathe operation. Its ball bearing spindle needs no adjustment for any speed from 45 to 1500 rpm, a feature that saves maintenance costs and prolongs spindle accuracy. Vital wear points throughout the lathe are protected by self-lubricating bronze bearings. The lasting accuracy that results from rugged, accurate overall construction keeps production at peak efficiency and holds costs down. With its 11" swing and 1" collet capacity the economical Logan can hold the costs as well as the tolerances on much of your lathe work.

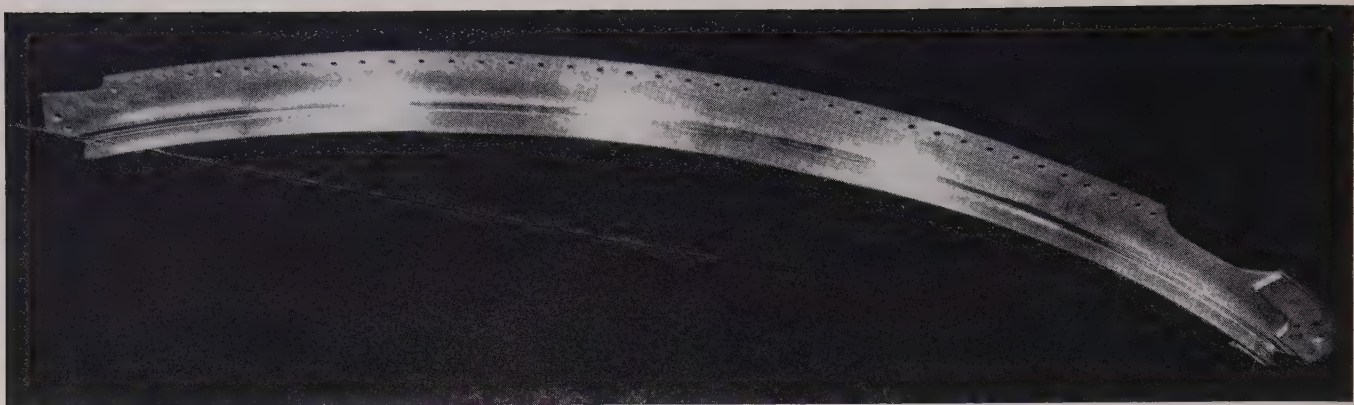
*See your Logan Dealer, or Write for the Logan Lathe Catalog*

LOOK TO LOGAN FOR BETTER LATHES AND SHAPERS

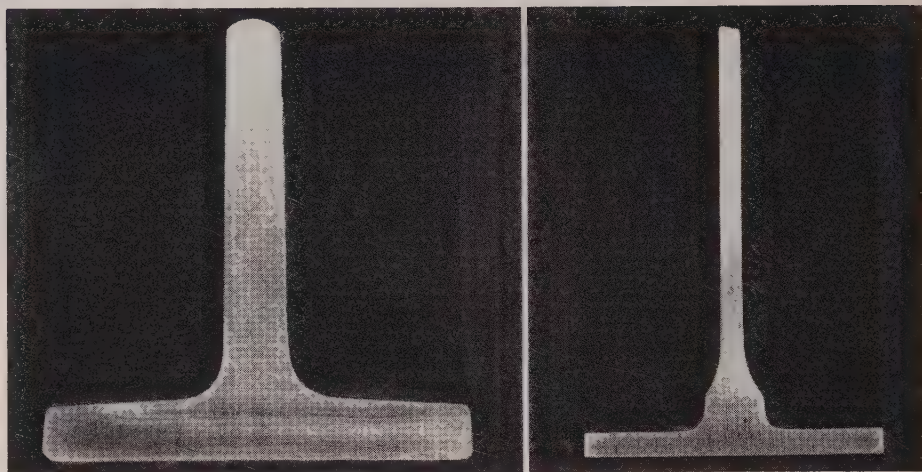
**LOGAN ENGINEERING CO.**

4901 West Lawrence Avenue, Chicago 30, Illinois





Hot-rolled chrome-moly T-stock is machined to finished dimensions and hot formed to a radius of 42 inches. Drilling, reaming, electroplating, etc., complete flap track



# Rolled T-Sections Cut Aircraft Part Costs

**Landing flap supports formerly cut from chrome-moly steel bars now made stronger from T-stock. New method saves time and scrap costs**

By THOMAS A. DICKINSON

BY SEEKING and finding a better type of steel stock, engineers at J. C. Peacock Co., Los Angeles, were recently able to produce a batch of aircraft parts with improved physical properties at a cost which was 75 per cent below original estimates.

The parts in this case are flap tracks for Consolidated Vultee aircraft. Each is a contoured strip of steel with a length of 55 inches. The accompanying photo shows the T-shaped cross-section of one of these tracks, purpose of which is to support the airfoil that is moved in and out of the wing of a large airplane to increase lift or drag during takeoff or landing.

**T-Cuts Wasteful**—Original plans for producing Convair flap tracks called for the cutting of a T-section from a solid bar of chrome-moly

steel. Then the T was roll-formed to a 42-inch radius, milled to finish dimensions (with tolerances ranging from plus 0.015-inch to minus 0.000-inch), drilled, reamed, electroplated, etc.

Among other things, this made it necessary to convert more than half of the material in each bar, worth about 20 cents per pound, into scrap, worth only 6 cents per pound.

**Buy T-Sections?**—Peacock officials decided to investigate the possibility of buying prefabricated T-sections which would eliminate the initial cutting operation and the resultant production of scrap. This was a difficult task because good grades of steel were fairly scarce, and because the flap tracks had to meet exacting quality specifications.

The investigation disclosed that Columbia Steel Co. could provide substantial quantities of hot-rolled 4140 steel T-sections with 3 x 3 x 3/8-inch by 24 feet dimensions for the same price that had been previously been paid for forged chrome-moly bars.

**Save Time and Scrap**—A sample of the 4140 material was obtained and fabricated as a flap track in four hours less time than was previously required, after which 60 per cent fewer scraps remained to be salvaged.

Before the later use of hot-rolled T-sections could be approved, Convair engineers at San Diego had to subject the sample track to every possible physical test; and the sample was found to exceed all the previous exacting quality specifications.



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Combination

**FOR YOU** This one-ton heat exchanger consists of Wolverine copper Trufin\* (nine-fins-to-the-inch)—the integral finned tube—coiled up in an extremely small radius forming a compact mass inside a copper shell. The ends of the shell are reduced by the special Wolverine Spun End Process† to a small diameter to receive tube connection.

This is one of many combinations of Trufin and Spun End Process that can be fabricated to your specifications.

Trufin, you know, is the tube with the fins that are extruded from the tube wall. Trufin's unique *integral* construction will withstand vibration and extreme temperature changes.

The Wolverine Spun End Process is a method of forming ends of tube into special shapes, fast and economically.

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Wolverine Trufin and the Wolverine Spun End Process available in Canada through the Unifin Tube Co., London, Ontario.

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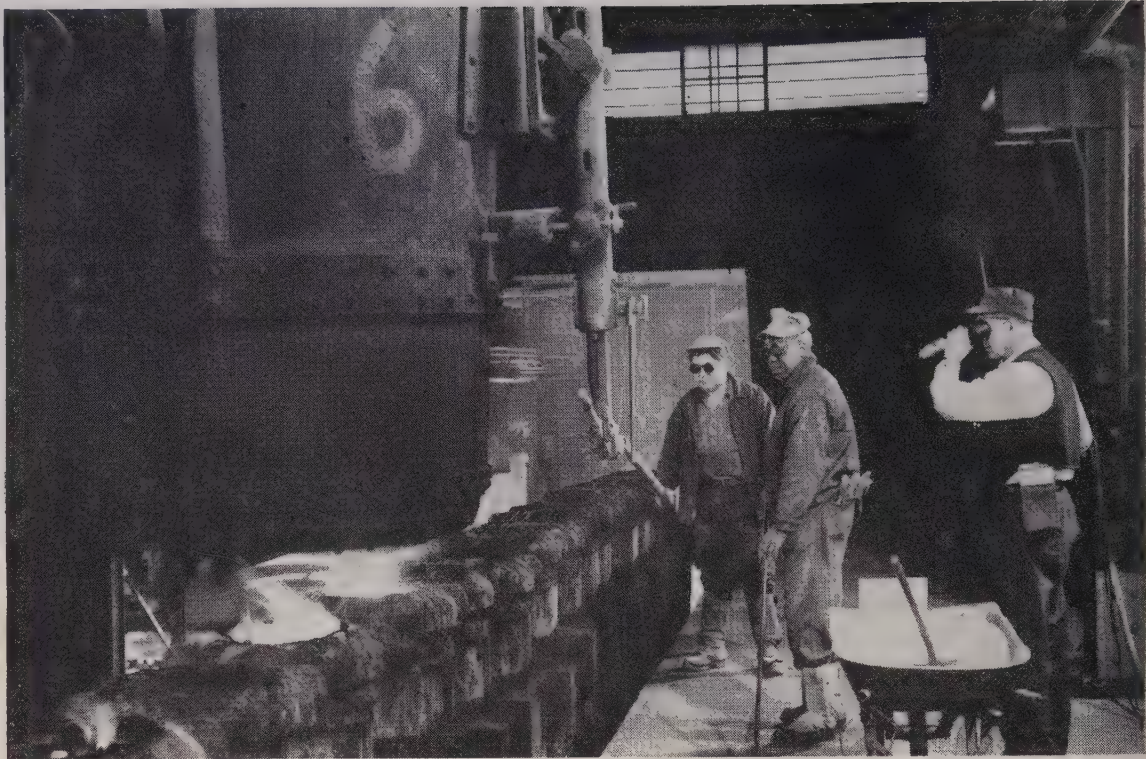
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Pouring steel into the big end up molds at Timken's Steel & Tube Division proves fume-free characteristic of Syncoat. Long mold life is reported

# Ingot Mold Wash Ends Coating Fumes

Syncoat has good qualities of tar and pitch without the heavy fumes normally present during coating and pouring. Tests prove it commercially acceptable

By G. P. MICHALOS & D. J. GIRARDI  
Steel & Tube Division  
Timken Roller Bearing Co.  
Canton, O.

BY-PRODUCT tar as a mold coating has been satisfactorily used in the steel industry for many years, but always with one persistent objection—the heavy fumes given off during coating and pouring. This objection has attracted a good deal of attention lately, and finally something has been done to remove it.

Engineers at the Steel & Tube Division, Timken Roller Bearing Co., have developed a mold wash, called Syncoat, that closely ap-

proaches tar in its properties of improving ingot surface and mold life. At the same time, none of the unpleasant fumes are evolved in the process.

**Start from Scratch**—Development of a new mold wash was complicated by the fact that very little information of definite nature exists regarding the properties a material should have if it is to be a successful mold wash. This is evident from the number of materials of widely different properties that

have been tried—milk of lime, salt water, suspension of aluminum powder, sugar, etc. Even the generally accepted washes, tar and pitch, are not thoroughly understood as to the reasons why they are acceptable.

Some of the points on which steel men generally agree are: First, mold wash should contain some volatiles which evolve neutral or reducing gases during pouring. These gases repel splashes, displace air from the mold, and

TABLE I  
PROXIMATE ANALYSIS OF VARIOUS MATERIALS

Material	Per Cent Volatile	Per Cent Fixed Carbon	Per Cent Ash
Tar	60.7	39.0	0.2
Pitch	39.4	60.2	0.4
A*	8.4	74.4	17.2
B*	39.2	52.7	8.1
Graphite 296	0.7	98.5	0.8
Masonoid	84.8	14.2	1.0
Syncoat	36.4	62.8	0.8

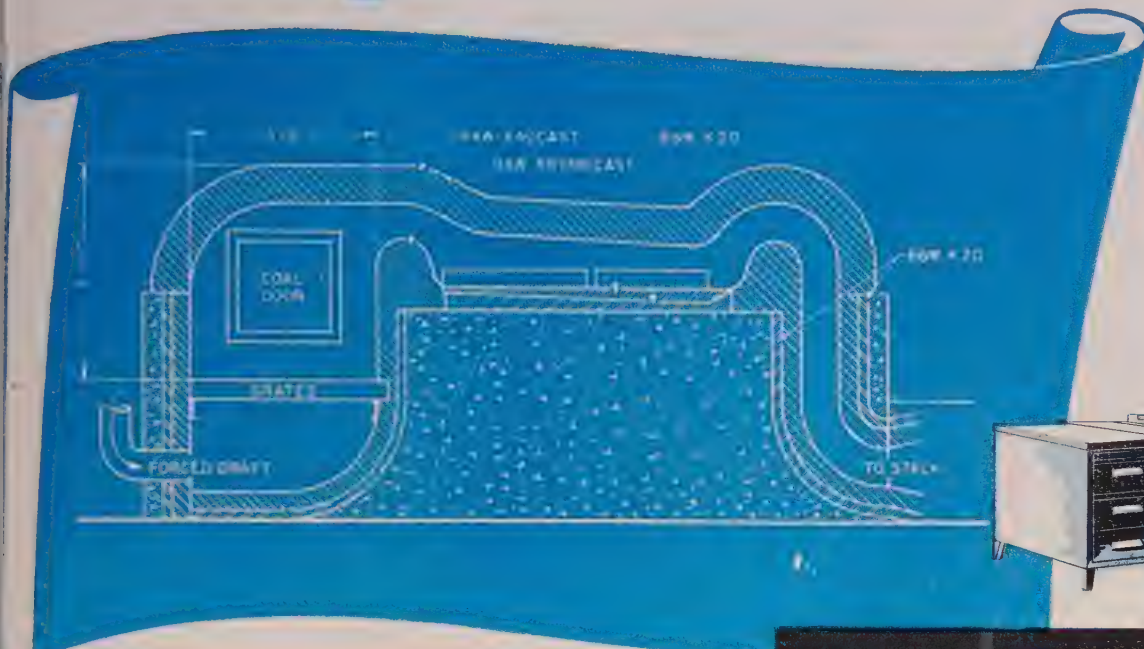
\* Commercial mold wash

TABLE II  
COMPOSITION OF SYNCOAT MOLD WASH

Water	4 parts by weight
Graphite Type 296	1.4 parts by weight
Masonoid	1.0 parts by weight
Pitch	0.6 parts by weight
Antifoam	Approximately 0.006 per cent by weight
Wetting Agent	Approximately 0.006 per cent by weight



# BUILDS COMPLETE FURNACE with B&W Refractory Concretes



Constructed of B&W Kaocast, backed up with B&W K-20 Insulating Concrete-Mix, and with a hearth of B&W Kromecast, this forge furnace had to stand up under these tough "stop-and-go" conditions:

- Operated only 8 hours a day
- Shut down over week-ends
- Coal-fired forced draft with a pressure of 14 ounces
- 2650 F and higher temperatures

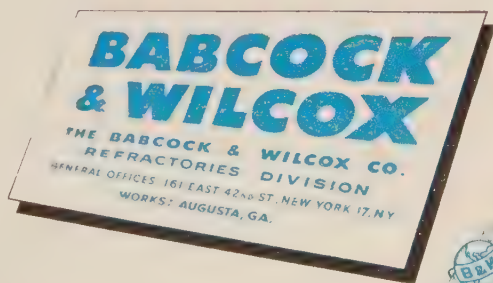
Heating 125 lbs of steel per square foot of hearth area per hour to a temperature of 2300 F, Catawissa found the furnace took this punishing service so well that they built another one to the same specifications.

Quality control was also improved due to the elimination of inclusions in the forged steel products.

There are good reasons for the excellent performance of these B&W Refractory Concretes. Kaocast, a 3000 degree refractory castable, has high resistance to spalling and slag attack. It offers low volume change and negligible reheat shrinkage. Versatile Kaocast can be molded quickly, easily cast directly in place or applied with a cement gun.

B&W Kromecast provides the necessary resistance to abrasion, to the effects of molten metal, and to slag attack which are so necessary for a forge furnace hearth. The insulating properties of B&W K-20 Insulating Concrete-Mix protect the exterior ordinary concrete lining and hold temperatures down to such an extent that the outside of the furnace can be touched with a bare hand.

*These are some of the reasons why B&W Refractory Concretes are being used in so many thousands of applications. Whether you need a whole furnace lining or small special shapes, it pays to investigate B&W Refractory Concretes.*





# Technical Service Data Sheet

## Subject: PROTECTING ALUMINUM WITH **ALODINE®**

### "ALODINE" No. 100

"Alodine" No. 100 forms an amorphous phosphate surface on aluminum which is thin, tough, durable, non-metallic, continuous with and a part of the basis metal. The "Alodine" film anchors paint, prolongs paint life, and protects aluminum exposed unpainted to the atmosphere.

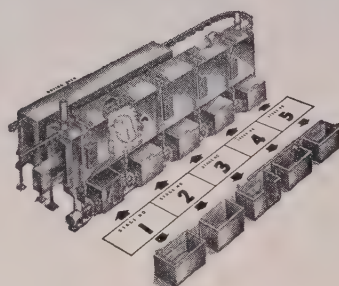
With the "Alodine" No. 100 bath at its normal temperature of 120° F., coating time by immersion approximates 1½ minutes—and by spraying, 15 to 20 seconds. Coating times and bath temperatures can be varied to suit operating conditions.

### "ALODINE" No. 600

"Alodine" No. 600 forms corrosion-resistant coatings that provide excellent protection for unpainted aluminum and also make an effective paint-base. This grade is recommended for use in place of "Alodine" No. 100 on aluminum parts that are to remain unpainted or to be only partly painted; and on all aluminum castings and forgings whether or not these are given a paint finish.

### "ALODINE" FLOW SHEETS

#### MULTI-STAGE POWER WASHER FOR SPRAY ALODIZING



#### IMMERSION TANKS FOR DIP ALODIZING

#### PROCESS SEQUENCE

1. Clean
2. Rinse
3. "Alodine"
4. Rinse
5. Final Rinse

**NOTE:** Equipment can be of mild steel throughout, except the "Alodine" stage which must be of acid-resistant material.

"Alodine" No. 600 is applied at room temperature (70° to 120° F.). Recommended coating times are 3 to 5 minutes for an immersion process and 1 to 1½ minutes for a spray process.

COATING DATA	"ALODINE" NO. 100	"ALODINE" NO. 600
COMPOSITION	Amorphous phosphate.	Amorphous mixture of metal oxides and chromates.
COLOR	Depending on alloy treated, color range is from an iridescent blue-green to a dark slate grey.	Depending on time of treatment, color range is from golden iridescent to light brown.
THICKNESS	From 0.01 to 0.08 mil. No appreciable dimensional changes occur when aluminum is Alodized.	From 0.005 to 0.01 mil. No appreciable dimensional changes occur when aluminum is Alodized.
WEIGHT	50 to 300 mgs. per square foot. Optimum: 100 to 200 mgs. per square foot.	35 to 50 mgs. per square foot.
SOLUBILITY	Insoluble in water, alcohol, solvents, etc. Insoluble in most dilute acids and alkalis. However, strong acids and alkalis which attack aluminum may penetrate the "Alodine" film and react with the underlying metal. Slightly soluble in concentrated nitric acid. Soluble in molten sodium nitrate, etc.	Insoluble in alcohol, water, solvents, etc. Soluble in strong alkalis and acids.
ELECTRICAL PROPERTIES	High dielectrical resistance.	This coating is electrically conductive. Aluminum coated with "Alodine" No. 600 can be shielded-arc welded or spot welded.
HEAT STABILITY	Unimpaired at temperatures that melt aluminum.	Unimpaired at temperatures that melt aluminum.
FLEXIBILITY	Integral with and as flexible as the aluminum itself. Can withstand moderate draws.	Integral with and as flexible as the aluminum itself. Can withstand moderate draws.
ABRASION RESISTANCE	Approximately 90% of that provided by chromic acid anodized aluminum.	Approximately 90% of that provided by chromic acid anodized aluminum.
CORROSION RESISTANCE	Painted-superior to chromic acid anodizing. Unpainted-comparable with chromic acid anodizing. Meets MIL-C-5541 and other Government Finish Specifications.	Exceeds requirements of MIL-C-5541 and even AN-QQ-A-696a (anodic films)
PAINT-BONDING	Excellent. Equal to or superior to anodizing. Meets MIL-C-5541 and other Government Finish Specifications.	Excellent. Meets MIL-C-5541 and other Government Finish Specifications.
TOXICITY	Non-toxic.	Non-toxic.
BIMETALLIC CORROSION RESISTANCE	Shows good resistance against bimetallic or galvanic corrosion.	Shows good resistance against bimetallic or galvanic corrosion.

**TABLE III**  
**CONDITIONING DATA ON 9" x 9½"**  
**ROLLED BLOOMS PICKLED-BILLETERED,**  
**TOP POURED-KILLED STEEL,**  
**ALL GRADES**

Mold Wash	No. of Heats	T.M.H. Per Cent of Tar
Tar	200	100
A*	50	67.5
B*	272	77.7
Syncoat	120	94.5

\* Commercial mold wash

keep oxide films away from the mold surface. Volatiles, however, must be driven off in such fashion that no large amount of gas is formed below the rising molten metal level.

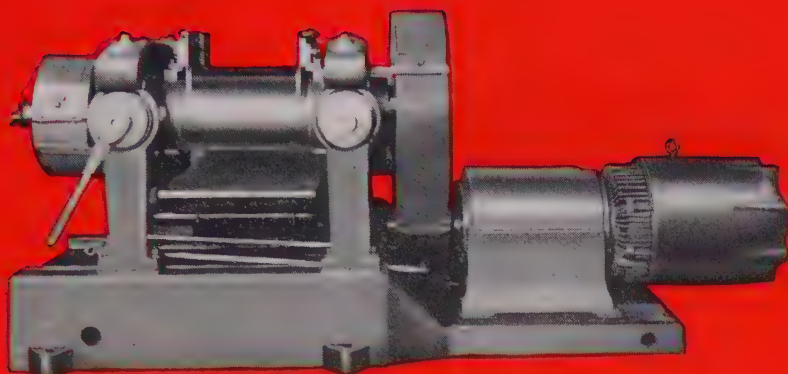
**Film of Carbon** — Secondly, a good mold wash must leave a thin layer of suitable material on the mold surface after the volatile is driven off. Pitch and tar both satisfy this requirement by leaving a thin film of carbon on the mold wall which is beneficial to ingot surface and mold life.

Finally, a mold wash should have low ash content which contributes to better ingot surface and cleaner steel. There are other considerations such as safety, health, fumes, cost, drying speed, ease of handling, etc., which figure into the commercial acceptance of a mold wash, but the three factors mentioned above are primary to the consideration.

**Syncoat Mold Wash** — Various materials were tested for their volatile, fixed carbon and ash contents, with the idea of discovering which materials fall in the range of values given for pitch and tar. (see Table I) Among those tested were graphite powder type 296 supplied by National Carbon Co., and Masonoid supplied by Masonite Corp. It is evident that a mechanical mixture of these two would have a wide range of volatile and fixed carbon contents, and with ash contents of approximately 1 per cent.

**Pitch Added** — The fineness of powdered graphite type 296 (97 per cent through a 200 mesh screen) facilitated good mechanical mixture through agitation. Addition of some pitch to the mixture further improved its uniformity. Since the graphite and Masonoid mix was initially designed to duplicate the volatile and fixed carbon contents of pitch, the





When you use a power drive which is an assembly of motors, pulleys and belts, chains and sprockets, gearing, speed reducers, etc., you waste time and money in purchasing, handling and assembling these various units into the final drive.

Master power drives designed as complete units with component parts matching size for size and rating for rating offer you considerable saving in space and money . . . especially in the larger sized units.

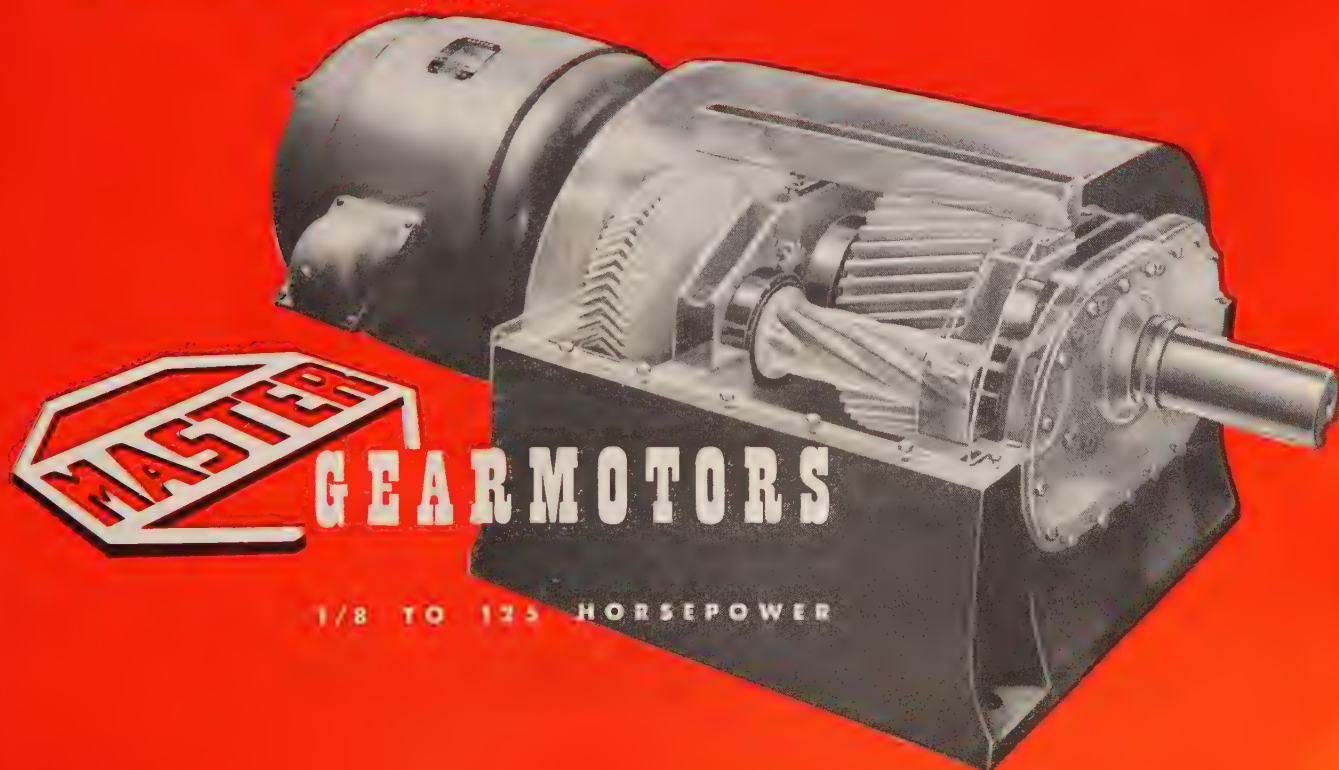
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**BIG ones too**

So don't put up with "make-shift" assemblies when you can select from Master's broad line, standard units which easily combine to give you the RIGHT horsepower, the RIGHT shaft speed, the RIGHT features in one compact unit that you can use RIGHT where you want it.

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**THE MASTER ELECTRIC COMPANY • DAYTON 1, OHIO**





BALLS FOR BEARINGS

ROLLER BEARINGS

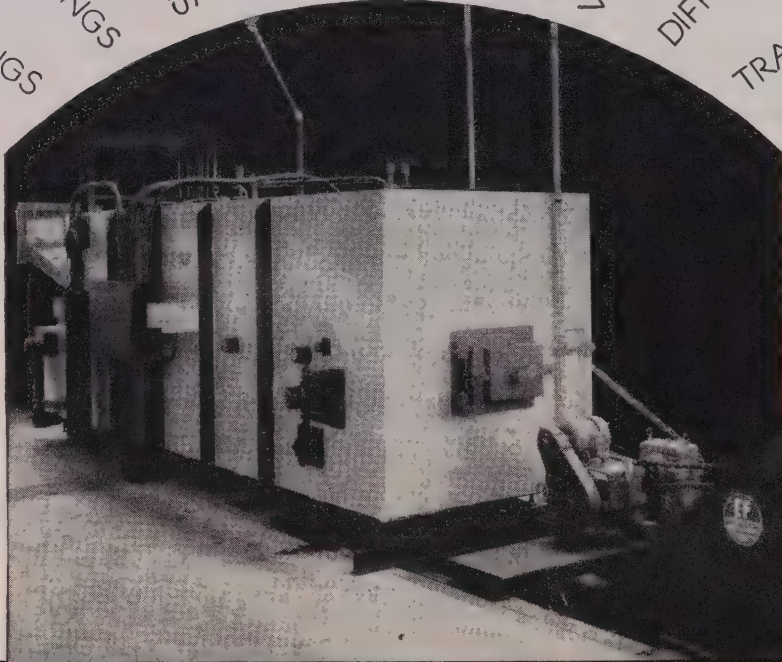
TRACTOR LINKS

AIRCRAFT PARTS

WASHERS

ENGINE PARTS

COIL SPRINGS



CAP SCREWS

PINIONS

BOLTS - NUTS

RIVETS

WRENCH PARTS

VALVE SPRINGS

DIFFERENTIAL GEARS

TRANSMISSION GEARS


CHAIN SPROCKETS

SPRING CLIPS

SMALL TOOLS

ROCK BITS

FORGINGS



# For Hardening Small Parts

Uniformly—Scale-free—Continuously


175 to 2000 lbs. per hour



EF Chain Belt Conveyor Furnace, Radiant Tube Gas Heated, Showing Labor-Saving Loading Arrangement. (View at Top) Electrically Heated Furnace Showing Automatic Quench and Discharge.

The EF Chain Belt Conveyor Furnace is one of the most satisfactory continuous heating units yet devised for scale-free hardening, carbon restoration and non-decarb heat treating small and medium size parts. The material is loaded onto a rugged heat resisting cast link conveyor belt; carried through the furnace; heated uniformly to proper temperature; automatically quenched and discharged. No pans or trays are needed. Hundreds in daily operation prove the dependability and efficiency of our design. 11 standard sizes. Capacities to 2000 lbs. or more per hour. Gas, oil or electrically heated. Furnished complete with any desired feeding or discharging equipment. Write for folders describing our chain belt or other production furnaces.

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**and Electric Furnaces**

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**THE ELECTRIC FURNACE CO.**

WILSON ST. at PENNA. R. R. *Salem - Ohio*

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addition of pitch does not change the characteristics desired.

With the above considerations in mind a mold wash named Syncoat and having the composition shown in Table II was arrived at.

**Mixing Tips**—Water suspensions of masonoid have a tendency to foam. The addition of graphite and pitch to the water prior to the addition of the Masonoid will help in reducing the foaming tendency of the mixture. Small quantities of anti-foaming agent and wetting agent help to improve mixture uniformity and reduce foaming. Constant agitation is essential as the graphite tends to settle out.

Preliminary runs on Syncoat mold wash were very encouraging, as can be seen from Table III. Syncoat heats showed considerable improvement in conditioned tons per man hour over mold washes A and B. The new wash attained a level of approximately 95 per cent of that for tar coated heats.

**Problem Solved**—Syncoat does not evolve the large volume of unpleasant fumes associated with pitch and tar and thereby effectively solves this major problem. Masonoid, graphite and pitch are all shipped in paper bag form so there is no handling problem.

Hand and machine sprayed coatings of Syncoat will dry in 5 to 15 minutes after application depending on the mold temperature. The coating formed is hard and will not rub off. Although the upper permissible limit of mold temperatures that can be used without affecting Syncoat mold wash have not been determined, measured mold temperatures up to 450°F did not have any noticeable detrimental effects.

**Good Mold Life**—Mold life data showed about a 6 per cent decrease in mold life of Syncoat coated molds versus tar coated molds. Because of the many factors that enter into establishing mold life it is felt that this relatively small difference is not significant. Relative cost data of Syncoat versus tar coatings for hand and machine sprayed big end up closed bottom molds is approximately 2.15.

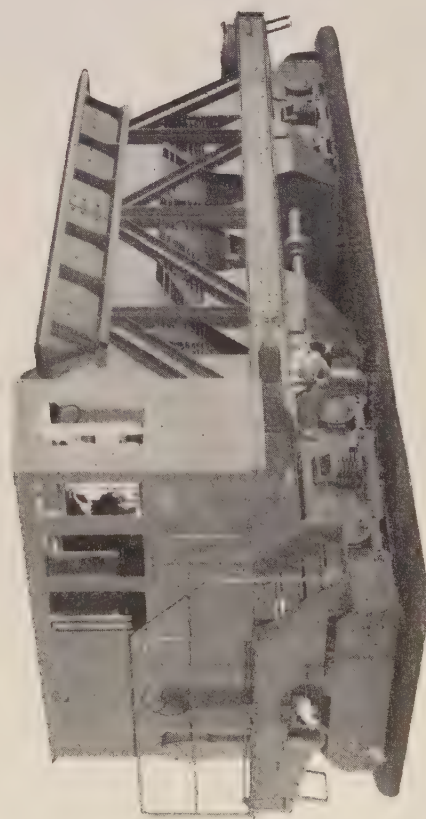
Experience at Timken over an extended period has shown that Syncoat mold wash is a solution to the mold coating problem.

## TRANSFERS - SCALE CARS COAL CHARGERS - COKE QUENCHERS

### 60-TON BOTTOM DUMP ORE TRANSFER CAR

This is one of the latest Atlas Transfer Car designs arranged for modern hydraulic operation. It provides close control of the discharge and eliminates freezing of air lines in the winter. A hydraulically operated pusher arm is provided of the latest horizontal telescoping type. The brakes also are hydraulically operated and apply automatically if pressure is low or if power fails.

At this plant the car must cross over to the coke track to shift coke cars. There is no conductor rail on the coke track so the car is equipped with a motor-driven cable reel attachment, enabling it to perform this switching function. When operating on the cable reel the collector shoes are cut out and automatically raised off of the conductor rails. The cab is overhung to give the operator a line of vision down the side of the car.



FOR THE VERY BEST  
*See* **ATLAS**

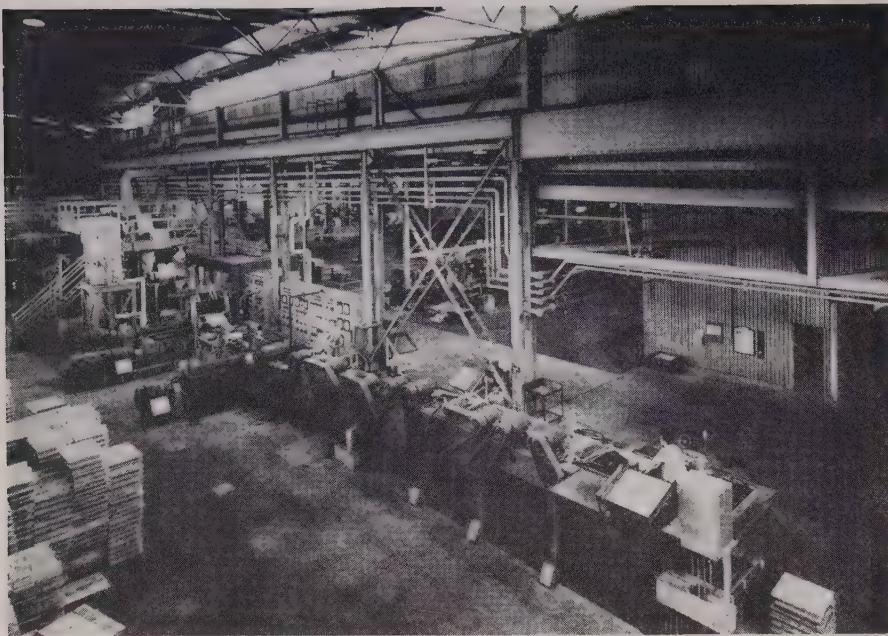
## THE ATLAS CAR & MFG. CO.

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VERTICAL ACID LINE RATES 1200 FPM  
... produces more than 12 two-foot-long sheets per second

## Kaiser Opens Electrolytic Tin Line

VERTICAL-ACID electrolytic tinning line, capable of tinning enough steel every second to make 50 average-size tin cans, has started operation at the Fontana, Calif., plant of Kaiser Steel Corp.

Rated at 1200 fpm, the new line will produce more than 10 two-foot-long sheets of tinned steel per second. The entire process is automatic, including uncoiling, cleaning, pickling, plating, reflowing, oiling, shearing, classifying and piling of tin-coated steel strip.

General Electric Co., working with Kaiser engineers, supplied the electrical system for the installation. The company furnished a photoelectric loop control for the strip-propelling phase and controls for the electrolytic cleaning, pickling, plating, reflowing, and chemical-treatment processes.

**Regulating Panels**—Two giant control panels, each over 90 feet long, are used to regulate the alternating and direct current sections of the line. High and low voltage distribution switchgear are incorporated.

Two 1500-kva transformers furnish power for the flow-brightening equipment. A 60,000-v power pack supplies the electrostatic charge for oiling the strip after

it has been tinned. Other GE equipment includes motors, motor-generator sets, transformers, and instrumentation.

The new Kaiser installation employs a beta-ray gage in one of its first applications on a continuous tinning line. This noncontacting gage continuously and automatically monitors thickness of the tin plate as it passes through the line. A pinhole detector checks the strip for pinholes and other imperfections.

**Improved Classifier** — GE engineers introduced an improvement on the sheet classifier whereby different flights can be shut down and jogged to clear up a cobble. Flights then are reaccelerated without shutting down the line. This feature should reduce the amount of plate formerly damaged when the line had to be stopped.

### Hyster Talks Turret Trucks

Catalog featuring their line of turret trucks for horizontal materials handling in every kind of industry has been published by Hyster Co., Portland Oreg. Specifications are included in the brochure which is available free of charge from the company.

## Belt Weighs Continuously

DEVELOPMENT of a conveyor belt weighing system capable of electronically adding, subtracting and recording tons per hour of material delivered to one or more points is announced by Trans-Weigh Co., Wayne, Pa. Industrial Division, Minneapolis - Honeywell Regulator Co., Philadelphia, co-operated in perfecting the device.

Applicable for belt-conveyed materials such as low-grade ore, the system continuously weighs material being delivered and provides running measurements of tonnage as well as the total tonnage delivered over a period of time. Measurements can be transmitted over a considerable distance either to a foreman's office or to a central control panel board where chart records are maintained.

**Integrates Total Weight**—In operation, the conveyor belt rides over a set of three idlers which form a wide-based trough. The force exerted on these is measured by a strain gage. Weight of the belt itself and other parts is subtracted electrically. Final weight measurements are fed into an electronic recorder which indicates and records the instantaneous flow and integrates the total weight passing on the belt.

Among the many applications for this new system are coal feed to power plants, ore recovery measurements in smelting plants, and any other industry application involving bulk handling of materials which used to be guessed or batch-weighed.

### Calculator Uses Thread Inserts

In converting side covers of their calculating machine from aluminum to magnesium castings, engineers of Marchant Calculators Inc., Oakland, Calif., reduced the weight of their design. But to accomplish this change they found it desirable to improve the characteristics of the tapped holes.

This was done by installing Heli-Coil thread inserts into the prepared thread bosses of the cast side covers. Three inserts are used in each cover, forming  $\frac{5}{16}$ -18 internal threads  $\frac{5}{16}$ -inch long.

The inserts, helical coils of diamond shaped stainless steel wire,



# SQUARE FACTS

## stop losses

(THE EQUIVALENT OF)

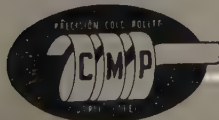
# 3389 blanks this size

A sheet of exactly .022" strip steel the  
size of this page (8 1/4" x 11 1/4") weighs 9.4416  
ounces. The same size sheet of  
.024" (.022", .002" oversize)  
with the square punched  
out weighs the  
same.

footage loss increases as thickness increases;  
decreases as gauge decreases.

in every ton  
if the .022"  
strip steel  
you order  
actually measures  
.002" oversize

the precision gauge tolerance of **CMP THINSTEEL**  
protects you against such costly losses,  
insures maximum practical yield per ton



the **Cold Metal Products co.**

YOUNGSTOWN 1, OHIO

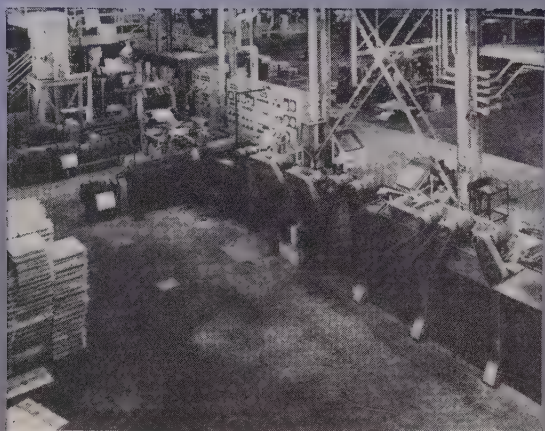
New York • Chicago • Indianapolis • Detroit • St. Louis • Los Angeles • Cleveland

See next page for list  
of THINSTEEL products.





If your blank size is **SQUARE**, round, oval, or any other shape, obtain more blanks per ton



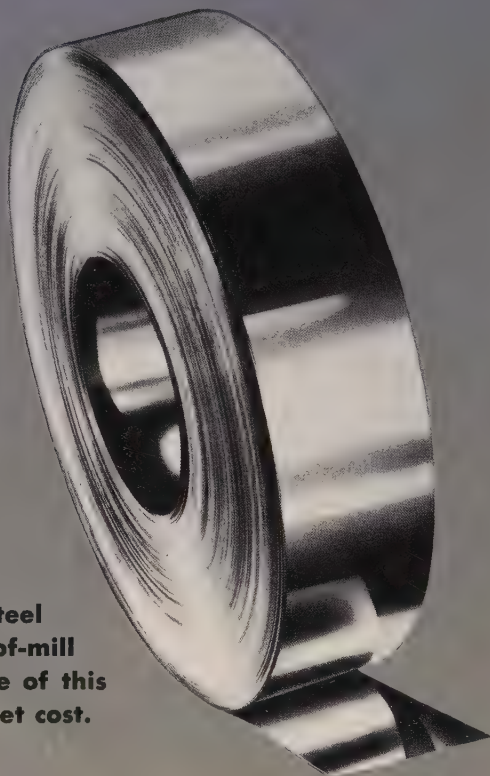
VERTICAL ACID LINE RATES 120  
... produces more than 12 two-foot-long s

## It "Pays Off" to Pay The Difference For **CMP THINSTEEL** Precision Cold- Rolled Strip....

Pay more for Thinsteel and cut costs; more than for run-of-mill strip or sheet, that is. Unusual, isn't it, for a steel producer to say, "Buy our steel — it costs more money." But it's not because CMP Thinsteel strip sometimes costs more than sheet coils or run-of-mill strip that it is to be recommended but because the use of this precision product can well mean a lower end product net cost.

And how is this possible? Because in addition to the greater area or larger number of square feet per ton due to the close gauge tolerances inherent in CMP strip, but also because the characteristic of uniformity extends to physical properties, finish, etc., which prolong die life and mean fewer rejects. If this is true, obviously the first steel cost is not the important consideration but rather your attention should be focused on the end product cost. We'd like to test this theory in your operations and for your end products and we think it's worth your while to investigate the accuracy of these claims for your particular processing operations. If sheet coils or run-of-mill strip meets with your full approval and gives you complete satisfaction then you don't want to buy CMP Precision Thinsteel.

**CMP**  
with **THINSTEEL**  
TRADE MARK



**LOW CARBON STEEL**  
**ELECTRO-ZINC COATED**  
**HIGH CARBON STEEL**  
**TEMPERED SPRING STEEL**  
**STAINLESS STEEL**

CMP THINSTEEL products can be ordered direct from the mill, or for less than mill quantities or for emergency service needs, from following warehouses:

The Kenilworth Steel Company, 750 Boulevard, Kenilworth, New Jersey, 'phone N. Y. COrtland 7-2427 or N. J. UNionville 2-6900.

Precision Steel Warehouse, Inc., 4409-4425 West Kinzie Street, Chicago 24, Illinois, 'phone Columbus 1-2700.

The Cold Metal Products Company of California, 6600 McKinley Avenue, Los Angeles, California, 'phone PLeasant 3-1291.



the **Cold Metal Products co.**

YOUNGSTOWN 1, OHIO

New York • Chicago • Indianapolis • Detroit • St. Louis • Los Angeles • Cleveland



# KEEP YOUR PRODUCTION PICTURE OUT OF THE **RED**...



## Best Picture on Cold Rolled Strip



is

**THINSTEEL**  
TRADE MARK

Why? Because the entire producing facilities and company organization are aimed at the processing and finishing of only one highly specialized product—light gauge strip steel in carbon grades, alloy, stainless, and hardened and tempered spring steel.

## Best Picture, too, for consistent performance

How? The measure of in-process controls applied throughout production cycles necessarily results in adherence to specifications and insures equality of delivery from one order to the next.



## Production



## And the best picture for more finished parts per ton

Proof? If you will first concede that the strip steel held closest to the specified thickness will result in more feet per pound and thus more finished parts per ton, and if you will test CMP THINSTEEL with this factor in mind, we think you will agree that the use of CMP THINSTEEL in your plant will make your production problems easier and your profit picture brighter.



**the Cold Metal Products co.**

YOUNGSTOWN 1, OHIO

New York • Chicago • Indianapolis • Detroit • St. Louis • Los Angeles • Cleveland

**LOW CARBON, HIGH CARBON (Annealed or Tempered) STAINLESS AND ALLOY GRADES, ELECTRO ZINC COATED ARE AVAILABLE FROM:**

THE COLD METAL PRODUCTS CO. of CALIFORNIA, 6600 McKinley Avenue, Los Angeles  
Phone: PLeasant 3-1291

THE KENILWORTH STEEL CO., 750 Boulevard, Kenilworth, New Jersey

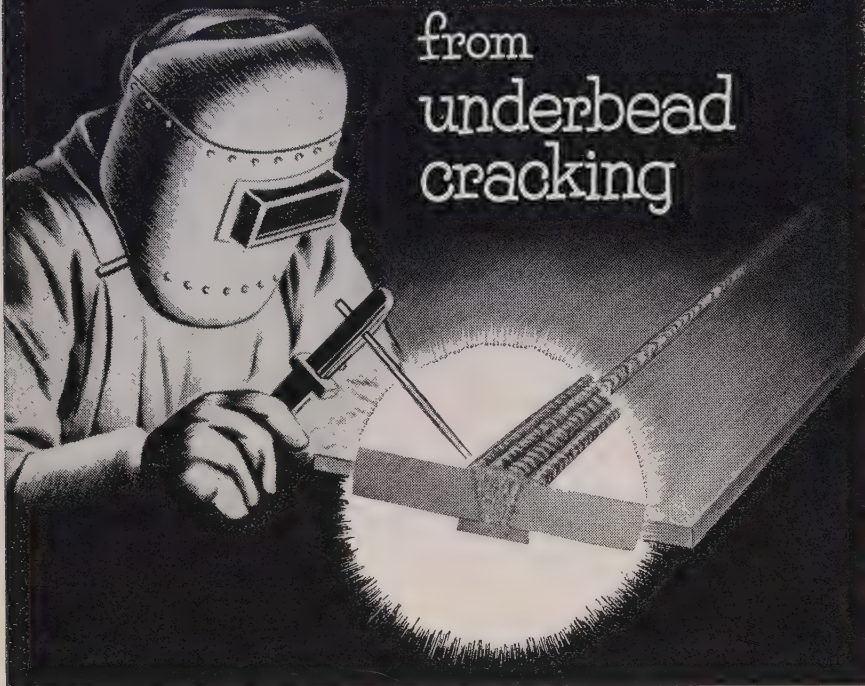
Phones: N. Y., COurtlandt 7-2427; N. J., UNionville 2-6900

PRECISION STEEL WAREHOUSE, INC., 4425 W. Kinzie, Chicago • Phone: COlumbus 1-2700



# PROTECTION

from  
underbead  
cracking



## Popcorn Insulation

Vermiculite insulation keeps heat from this worker's hands although molten zinc is held at 787°F only 3 inches below. In this galvanizing operation, the mica-like granular material, a product of Zonolite Co., Chicago, prevents excess heat loss. Tiny air cells in each particle act to obstruct or slow passage of heat

## Use ARCOS Low Hydrogen Electrodes

With Arcos Low Hydrogen Electrodes you can produce sound weld metal without the need for preheat or post heat frequently required with mild steel electrodes. Correct selection and blending of coating ingredients, and controlled-cycle, high temperature baking produce a moisture-controlled coating that safely minimizes the gases released in welding.

The moisture-proof wrapping on every 5 and 10 lb. package in a box of electrodes prevents moisture pick-up in shipment and storage.

Added together, these Arcos "quality controls" assure you consistently sound weld metal on every high tensile steel application. ARCOS CORPORATION • 1500 South 50th St., Philadelphia 43, Pa.

provide internal threads having a tensile strength up to 50 per cent greater than is possible in the magnesium alone. In case the side plates are removed for cleaning or servicing the inner parts of the machine, there is no risk of damage and wear to the threads.

## Device Watches Falling Air

Pressure switch for sounding a buzzer or other signal when air pressure in a tank falls below the safety level is being produced by the Rochester Mfg. Co., Rochester, N. Y.

The switch is intended primarily to serve as a warning signal on buses and trucks having air brakes, to demand the driver's attention if the air pressure drops dangerously. A number of manufacturers already are including the switch as standard equipment on all new models. The switch can also be applied to any other compressed air system.

Principal part of the switch is a pressure-sensitive diaphragm, enclosed in a one-piece steel case drawn from 0.050 terneplate. In operation, the diaphragm, through a rocker action linkage, completes an electrical circuit whenever the air pressure in the air receiver

ARCOS GRADE	A.W.S. SPEC.
Tensilend 70	E7016
Tensilend 100	E10016
Tensilend 120	E12015
Manganend 1M	E9015
Manganend 2M	E10015
Nickend 2	E8015
Chromend 1M	E8015
Chromend 2M	E9015

# WELD WITH

# ARCOS



Specialists in Stainless, Low Hydrogen and Non-Ferrous Electrodes



## The Heat Wall

A WALL of intense, metal-melting heat is termed nature's second obstacle against supersonic flight.

William Imbrie, development engineer, General Electric Co., Schenectady, N. Y., says the first obstacle, the supersonic barrier, has been overcome. This wall of heat or "thermal barrier" must also be hurdled if aircraft of the future are to exceed the record of 1300 mph.

Mr. Imbrie says present ram-cooling methods are incapable of preventing aircraft metals and equipment from softening at excess speeds and high altitudes.

Refrigeration systems prevent pilots from roasting alive, but aircraft manufacturers are reluctant to install additional heavy equipment for cooling at supersonic speeds.

"We must either develop new temperature-resistant metals or find more effective methods of cooling," Mr. Imbrie maintains.

tank drops below the predetermined safety point—usually about 60 pounds. At that point a pressure difference of not more than half a pound actuates the switch. In most installations the switch activates a loud buzzer to call attention to the drop in air pressure.

## Battery Applications Reported

Help for industrial users in selecting and installing the proper glass-jar batteries in control, alarm, telephone, switchgear and signaling services is provided by a 20-page catalog published by Gould-National Batteries Inc., Trenton, N. J.

Called "Stationary Batteries for Auxiliary Power and Control," the free booklet covers specifications, dimensions and application information.

## Ceramic Used As Tubing Media

Triangular shaped, tough white ceramic tumbling media for barrel tumbling, deburring and finishing are introduced by Crown Rheostat & Supply Co., Chicago. The company says it has longer service life than stones or aluminum oxide tumbling chips.

Available in a variety of sizes,



**TESTED**  
for superior  
weld strength

PHYSICALLY  
RIGHT

WELD METAL

## Use ARCOS Stainless Electrodes

Because Arcos applies a series of mechanical performance tests for strength, toughness, and ductility to all types of Stainless weld metal, you can be sure that your deposits with Arcos Stainless Electrodes will be physically "right". Whatever the job requirement—ability to withstand heavy loads, high pressures, or severe shocks—you'll get the results you want.

Other Arcos "quality controls" assure that the weld metal will be chemically and metallurgically "right" as well. That's why it will pay you to depend on Arcos Stainless Electrodes for the correct combination of properties that lead to sound welds on every job. ARCOS CORPORATION • 1500 South 50th St., Philadelphia 43, Penna.

**WELD WITH**

**ARCOS**

Specialists in Stainless, Low Hydrogen and Non-Ferrous Electrodes

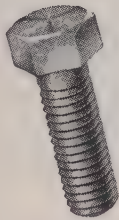


# STANDARDS and SPECIALS by the Millions

## THE FERRY CAP & SET SCREW CO.

2159 SCRANTON ROAD

CLEVELAND 13, OHIO



### "SHINYHEADS"

America's Best Looking Cap Screw

Made of high carbon steel — AISI C-1038 — to standards for Full Finished hexagon head cap screws — bright finish. Heads machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Tensile strength 95,000-110,000 p.s.i. Carried in stock.



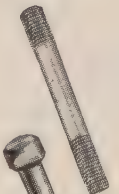
### "LO-CARBS"

Made of AISI C-1018 steel — bright finish. For use where heat treatment is not required and where ordinary hexagon heads are satisfactory. Hexagon heads die made to size — not machined. Points machine turned. Tensile strength 75,000-95,000 p.s.i. Carried in stock.



### FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.



### "SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered machined point. Nut end, oval point. Land between threads shiny, bright, mirror finish. Carried in stock.



### CONNECTING ROD BOLTS

Made of alloy steel — heat treated — threads rolled or cut — finished to extremely close thread and body tolerances — body ground where specified. Expertly made by the pioneers in producing connecting rod bolts by the cold upset process.



### FERRY PATENTED ACORN NUTS

For ornamental purposes. Steel insert — steel covered. Finish: plain, zinc plated, cadmium plated. Size: 9/16", 3/4", 15/16" across the flats.



### "HI-CARBS"

Heat Treated Black Satin Finish

Made of high carbon steel — AISI C-1038. Furnished with black satin finish due to double heat treatment. Hexagon heads die made, not machined. Points machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.



### SET SCREWS

Square head and headless — cup point. Case hardened. Expertly made by the pioneers in producing Cup Point Set Screws by the cold upset process. Cup points machine turned. Carried in stock.



### FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.



### ADJUSTING SCREWS

Valve tappet adjusting screws — Hexagon head style — to blue print specifications — hexagon head hard; polished if specified — threads soft to close tolerance — points machine turned; flat and chamfered.



### SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



## STANDARDS

carried by  
LEADING  
DISTRIBUTORS

## \* SPECIALS

furnished to  
BLUE PRINT  
SPECIFICATIONS

WRITE FOR  
INFORMATION

SEND FOR SAMPLES

Pioneers and Recognized Specialists, Cold Upset Screw Products since 1907



the user can select the proper size to avoid lodgement hazards encountered when conventional random shaped natural or synthetic stone chips lodge in holes and slots.

### Exhaust Gas Powers Propeller

First light airplane to use exhaust gases from a jet engine to power a propeller has successfully passed initial flight tests, reports Cessna Aircraft Co.

The new XL-19B is a joint development of Cessna, Boeing Airplane Co., the U. S. Army and Air Force. Its engine is the result of a joint Boeing-Navy project, the body is that of the Cessna L-19.

The engine is a new model gas turbine, but unlike a jet engine, it employs the exhaust gases from its jet power-producing section to drive a propeller shaft. Turbine will operate on diesel fuel, any grade of automotive fuel, high octane aviation gasoline and jet fuel.

### Process Cuts Coating Costs

Production costs have been reduced more than 50 per cent on baked enamel and lacquer finishes of small metal parts for industry as result of a process developed at Apex Stamping Co., Newark, N. J.

The method speeds up the time of production by as much as 300 per cent in coating parts from 1/2-inch to 2 feet in length. The company credits this to a conveyorized system for coating that was formerly possible only by spraying method.

Paint waste, as high as 85 per cent in the spray method, has been greatly reduced. Rejects, which ran as high as 25 per cent, have been eliminated.

### Caterpillar Builds in East

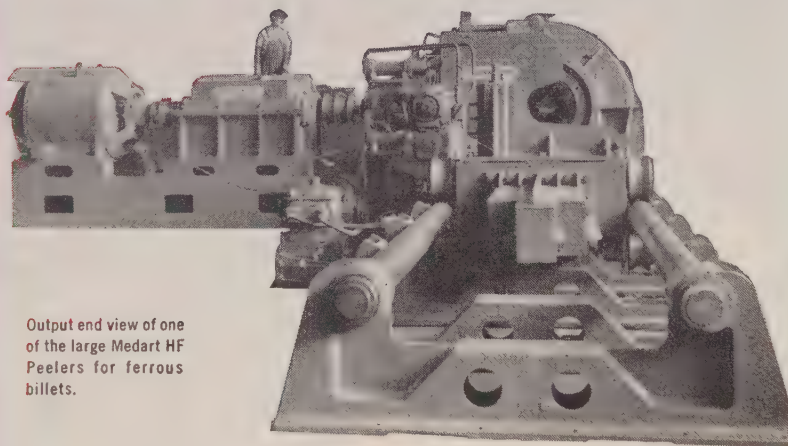
First steel on a new plant for Caterpillar Tractor Co., York, Pa., was recently erected. The 400,000 sq ft plant is expected to start production next year, company officials report, enabling the firm to use eastern steels and better supply replacement parts to eastern and European outlets.

Plans call for 10 machining lines and one assembly line which will assemble complete track rollers and track chain. No prime products will be manufactured. Nature

# Billets Peeled at 20', 30', even 40' Per Minute!



## MODEL HF BILLET PEELERS



Output end view of one of the large Medart HF Peelers for ferrous billets.

**T**he output of Medart Billet Peelers is limited only by the capacity of the best available cutting tools! That means the absolute maximum in production at the lowest possible cost!

Built to handle both ferrous billets from 1" to 14" diameter — as well as brass, copper, aluminum and other non-ferrous metals — the throughput speeds of these Medart Peelers range from 1' to 40' per minute, depending upon workpiece size and material. They can be equipped with either one or two cutterheads—arranged for high surface finish or heaviest hogging cuts—and furnished with hydraulic or pneumatic controls, with push-pull feed devices, and for completely automatic operation.

No other scalping or turning machines made can match the production speed or economy of Medart's complete line of Billet Peelers.

*Write NOW For Catalog!*

**THE MEDART COMPANY** 3535 DE KALB STREET,  
ST. LOUIS 18, MISSOURI



of the operation will require an unusually high percentage of expensive heat treating equipment such as furnaces, induction hardening equipment and generators.

## ASA Coal Mine Code Changed

Safety code of American Standard Association regarding installation of electrical equipment in and around coal mines has been revised and is available through the Bureau of Mines, U. S. Department of the Interior.

Last revised in 1926, the new

code is sponsored by American Mining Congress and the Bureau of Mines. It reflects the many changes that have taken place in the mining industry in the last quarter century.

## Chart Has Slingful of Data

A wall chart combining crane signals and suggestions for proper use of slings as well as strength and safe-load tables of slings ranging from 800 pounds to 243.4 tons, has been released by Macwhyte Co., Kenosha, Wis. It may be obtained by asking for chart 5273.

## Double Recoil Takes Kicks

ACCORDING to the Army, the tremendous kick of its new atomic cannon is absorbed by an innovation in artillery—two recoil motions. The primary recoil takes care of the big gun's actual "kick," while the secondary recoil absorbs the forces created by the primary, says R. Hoe & Co. Inc., New York, makers of the unusual mechanism.

In recoil, the atomic cannon's entire carriage slides back on stainless steel guides over its central turntable and rear pan. The gun is returned to normal position by a hydro-pneumatic device connected to the carriage.

**Easy Does It**—Another feature of the 280 mm weapon is the ease with which its giant barrel can be raised and depressed—zero to 55 degrees. This is achieved by a hydro-pneumatic equilibrator. It so balances the barrel that in the event of a power failure one man can operate the mechanism by hand without exerting more than 30 pounds of force on a control wheel, say Army ordnance authorities.

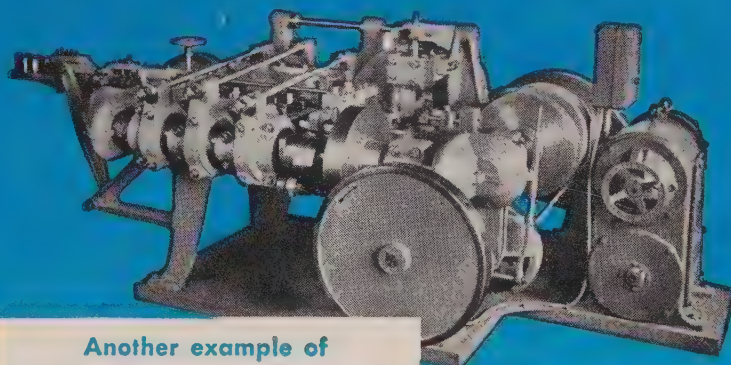
A prime manufacturing problem was precision machining of metal parts weighing up to 1600 pounds. For instance, a surface mirror finish of 4 microinches was required. In one case this was accomplished with a honing machine that was intended originally to finish cylinders of much smaller diameter than those used in the super gun's recoil and equilibrator mechanisms. The machine was rebuilt to accommodate larger work. Extensive alterations also were made on other machine tools, because urgency required the use of existing production equipment.

## Plastic Pack Saves Nozzles

Protecting their delicate precision spray gun nozzles in shipment and storage is no longer a problem with Binks Mfg. Co., Chicago. A small cylindrical container of clear polystyrene plastic solves the protection, identification and cost problems.

Until now cylindrical cardboard boxes were used, the nozzles being hand wrapped in heavy paper to give snug fit and protection. Seal-

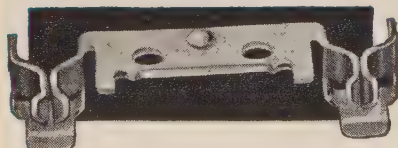
## PRODUCTION RECORDS *Broken* with NILSON 4-SLIDE Machine!



Another example of  
**FASTER, LOWER COST FORMING**  
of Ribbon Metal Stock

★  
**180 Terminal  
Contacts  
Per Minute**

★  
**7 Separate  
Operations  
Eliminated**



A famous national manufacturer tripled production of the Terminal Contact illustrated above (in actual size) and reduced production costs proportionately by replacing several progress die set-ups with one Nilson S-3-F four side machine. *Seven separate operations were eliminated; 180 completed contacts produced per minute. Time required for tooling changes was reduced 50% over similar type machines.*

**This example clearly shows the big savings you can make in overhead, maintenance, labor and time with a Nilson 4-slide!**

Taking stock directly from the coil, NILSON metal ribbon stock four-slide machines automatically feed, straighten, pierce, blank, swage, stamp, coin, cut off and perform up to five forming operations with speed and accuracy. Built in five models with capacities up to 2½" wide and feed lengths up to 15". For specific recommendations on your wire and ribbon metal forming problems, send details, prints or samples of your operation to us when you request the bulletin.

**NILSON**

Specialists in Wire Forming Equipment for Over 30 Years

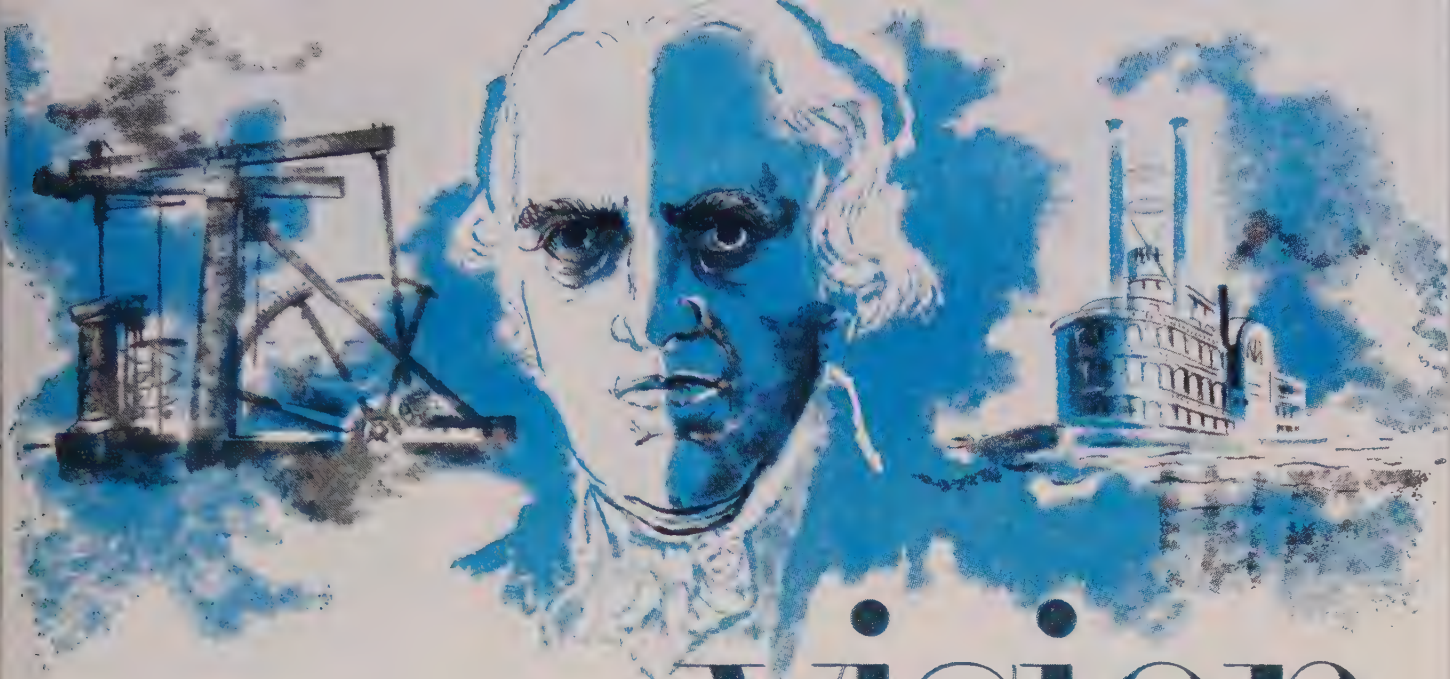
**THE A. H. NILSON MACHINE COMPANY**

1512-0 RAILROAD AVENUE, BRIDGEPORT 2, CONNECTICUT

OTHER NILSON PRODUCTS:

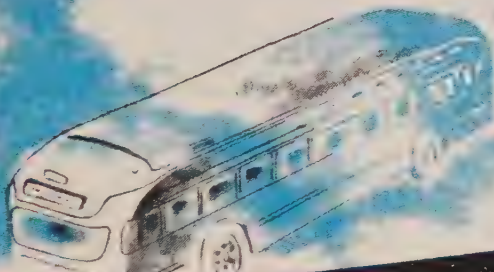
- Automatic blank-making machines
- Wire and stock coils
- Wire straightening equipment
- Automatic staple forming machines
- Fast Presses
- Slide Feeds for Presses





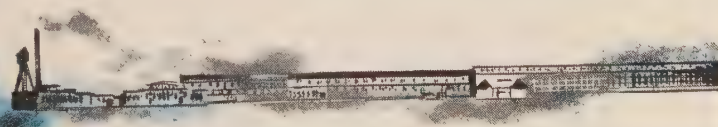
# vision

Through centuries of toil, there had been within man's hands the giant Steam, merely awaiting the vision of James Watt to harness its wasted energy and transform it into useful work. With the same force that lifted the lid of his mother's tea-kettle, Watt lifted mankind from an era of backbreaking slavery into the freedom of the Age of Machinery.

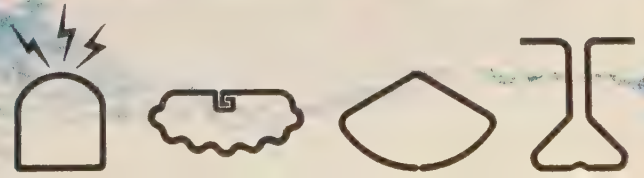


**Van Huffer**  
BE CORPORATION • WARREN, OHIO

Every day product engineers are finding new applications for Van Huffer cold formed metal shapes and tubing. Whether it's railroads or row-boats—busses or bombers—trailers or trucks—the uses are limited only by the vision of men who plan for tomorrow and capitalize on Van Huffer's half century of making miracles in metal.



WELDED • LOCK SEAM • OPEN SEAM • BUTTED TUBING  
• METAL SHAPES • MOULDINGS





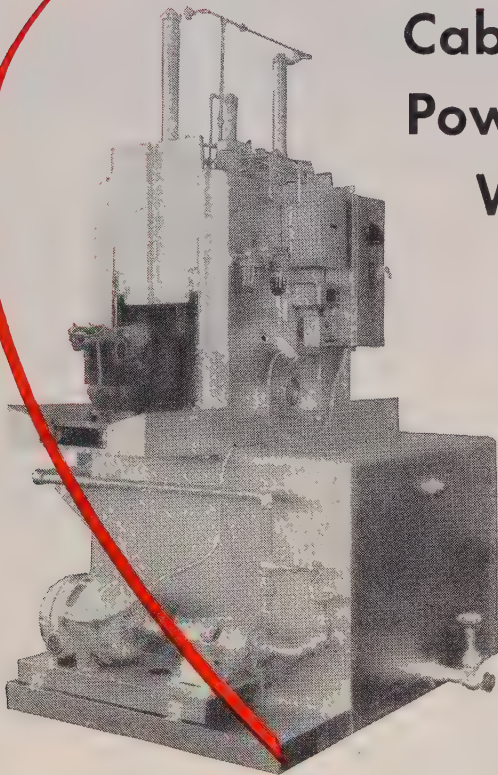


# Clean Take-Offs



Made Possible  
With This

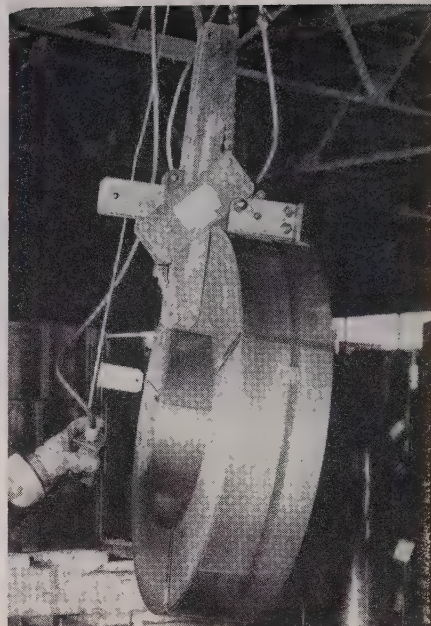
## Cabinet Type Power Spray Washer



Indicative of the versatility of Peters-Dalton engineers is the Industrial Washing Equipment illustrated above. It is a type of installation that can only be utilized by a few specialized manufacturers. This Cabinet Type Power Spray Washer has been designed for washing aircraft engine cylinders after machining—a most important step in meeting the high standard of finishing required for vital parts such as these.

Catch-all methods are not satisfactory for industrial washing needs. Metal cleaning equipment should be designed for the specific product and process. PD engineers, with their extensive background of experience and knowledge in this field, are available to discuss your problems for between-operation cleaning or paint preparation. If you would like us to tell you more—write, wire or phone.

PD Paint Spray Booths PD Drying and Baking Ovens  
PD Dust Collecting Systems PD Industrial Washing Equipment



### One-Man Grab

One floor man can handle both hoist and grab on this coil handler introduced by Dixon Automatic Tool Co., Rockford, Ill. Two models take coils up to 12 or 24 inches wide, in 2000 and 5000-pound sizes. Safety lock maintains positive grip at all times. As the crane lifts, the grab automatically adjusts to the coil size

ing and identification stamping completed the operation. The plastic container has a molded positioning pin which centers the material passage of the nozzle.

The self-locking cover contains a restraining collar which completely protects the delicate precision orifice. Thus when the cover is in place, the nozzle is firmly held top and bottom and identification can be made visually.

### Transmitter Weighs 29 Ounces

Initial mass production of a hand-sized transmitter designed to operate in the 152-174 mc frequency band, is announced by the Communications & Electronics Division, Motorola Corp., Chicago.

The compact unit, weighing only 29 ounces, has a power output of 20 to 40 milliwatts and a tested optimum range up to 5 miles. Contained within a seam-welded housing 7 $\frac{3}{8}$  x 2 $\frac{1}{2}$  x 1 $\frac{3}{4}$  inches, is the complete transmitter including self-contained dry batteries and microphone. The rigid chrome loop antenna doubles as the carrying handle.



**Peters-Dalton INC.**

17892 Ryan Road • Detroit 12, Michigan



## Meter Plant Under Way

Ground-breaking ceremonies for Westinghouse Electric Corp.'s new \$10 million meter plant at Raleigh, N. C., were held Nov. 18.

J. M. Wallace, manager of the meter division, says the plant is being built to relieve some of the facilities at the division's headquarters in Newark, N. J. The Newark facilities have been severely taxed in recent years by defense requirements for electrical measuring instruments and relays.

Erection of the new plant, which will consist of two buildings with an interconnecting wing, is scheduled to begin about March 1, and installation of the meter socket production department will begin in late July or August. The first meter is expected to be in production late in 1953.

The one-story brick and corrugated asbestos structure will be 1020 x 420 feet. The office building will be 460 x 80 feet, while a connecting one and two-story wing between the office and plant will be 180 x 80 feet. The second story of the wing will house office air conditioning apparatus and engineering laboratory generating equipment. The building project will provide approximately 500,000 sq ft of floor space.

## Small Cams in Large Numbers

Designed especially for milling large numbers of cams less than 3 inches in diameter with reduced production time is a unique machine developed by American Cam Co., Hartford, Conn.

The machine is an adaptation of a standard cam milling machine and has a maximum throw. Reduced to bench size, it can be operated at much faster speeds with fingertip control and quicker clearance between pieces.

## Fasteners for Tight Spots

A quick-acting, self-locking fastener particularly suited for securing water and gas tight casings and airborne equipment is manufactured by Dzus Fastener Co., Babylon, N. Y.

No tools are required for the operation of the fastener as it has an enlarged head which can be grasped



For safer assemblies  
use the dependable

**extra strength**

## of Cleveland High Carbon Heat Treated Cap Screws

• For assembly jobs needing fasteners of high tensile strength, it pays you to use popular Cleveland High Carbon Heat Treated Cap Screws—those accurately formed, extra strong screws. They're toughened by heat treating—but that's not the whole story of their dependable holding quality. They're notably *stronger* because made of high carbon steel by the Cleveland-developed Kaufman *Double Extrusion* Process of cold forging—a method that assures you fasteners in which the steel's grain flow conforms to the contour of the screw. Controlled high temperature hardening and drawing give them the extra benefits you expect from heat treated parts. Be sure to specify and buy Cleveland High Carbon Heat Treated Cap Screws.

**CLEVELAND** *Top Quality* **FASTENERS**

THE CLEVELAND CAP SCREW COMPANY

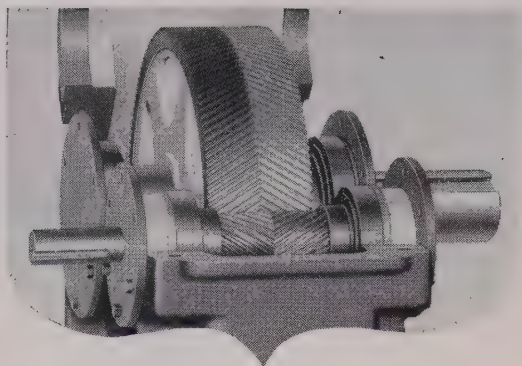
2935 East 79th Street, Cleveland 4, Ohio

Warehouses: Chicago • Philadelphia • New York • Providence

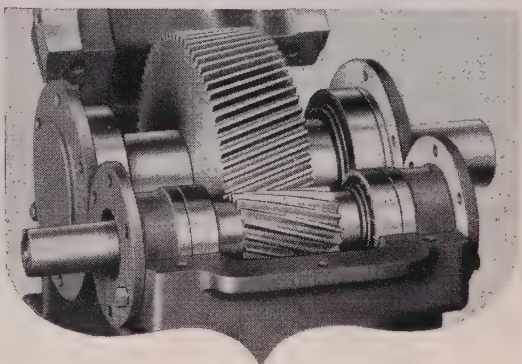
**originators of the Kaufman** **DOUBLE EXTRUSION** **Process**

Ask your jobber for Cleveland Fasteners

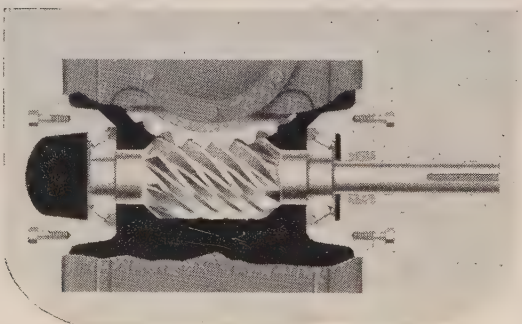




## A Complete Line of Speed Reducers



## HERRINGBONE • HELICAL • WORM GEAR



### *for Unbiased Selection of Type*

● Horsburgh & Scott Speed Reducers are available in 3 general groups, 12 distinct types in many sizes and hundreds of standard ratios. Many considerations, such as speed of driving and driven shafts, shape of housing and characteristics of drive, point definitely to one specific unit as the best drive for a particular duty. Having such a complete line to select from, engineers have exceptional freedom for unbiased selection of the right reducer for the job.

## THE HORSBURGH & SCOTT CO.

GEARS AND SPEED REDUCERS

5112 HAMILTON AVE. • CLEVELAND 14, OHIO, U.S.A.

Send note on Company Letterhead for Speed Reducer Catalog 46

in the hand. A small wire form replaces the usual receptacle or spring with the result that very little mounting space is required in the supporting frame or casing.

## Engine Standards Checked

FOLLOWING successful standardization of gasoline-fueled internal combustion engines in 3 to 4-inch bore sizes, the Defense Supply Management Agency has launched similar standardization of engines in 4 to 5-inch and 5 to 6-inch bore sizes. Following tests and acceptance, the Department of Defense will freeze specifications.

Object is to ease the logistics problem by reducing the number of parts that have to be procured and stocked at depots in various parts of the world in order to maintain and repair engines. In standardizing the 3 to 4-inch bore engines, the number of "high-mortality" wearing parts was reduced from 1187 to 59. A comparable achievement is hoped for in the case of the 4 to 5 and 5 to 6-inch bore engines.

**Lots Of Builders**—The contractors who are building the 4 to 5-inch bore test engines with standardized interchangeable wearing parts are: Twin Coach Co., Kent, O.; International Harvester Co., Fort Wayne, Ind.; Wisconsin Motor Co., Milwaukee; Waukesha Motor Co., Waukesha, Wis.; Minneapolis Moline Motor Co., Minneapolis; Hercules Motors Corp., Canton, O.; LeRoi Co., Milwaukee; Buda Co., Harvey, Ill.; and Continental Motor Co., Muskegon, Mich. Contracts for test engines in the 5 to 6-inch range went to the Continental, Buda, LeRoi, Hercules, Minneapolis-Moline and Waukesha companies, and also to Hall-Scott, Berkeley, Calif.

The Army Corps of Engineers is acting as agent for the military departments in developing the basic information on which the standardized engine program is based.

## Aluminum Conductors Studied

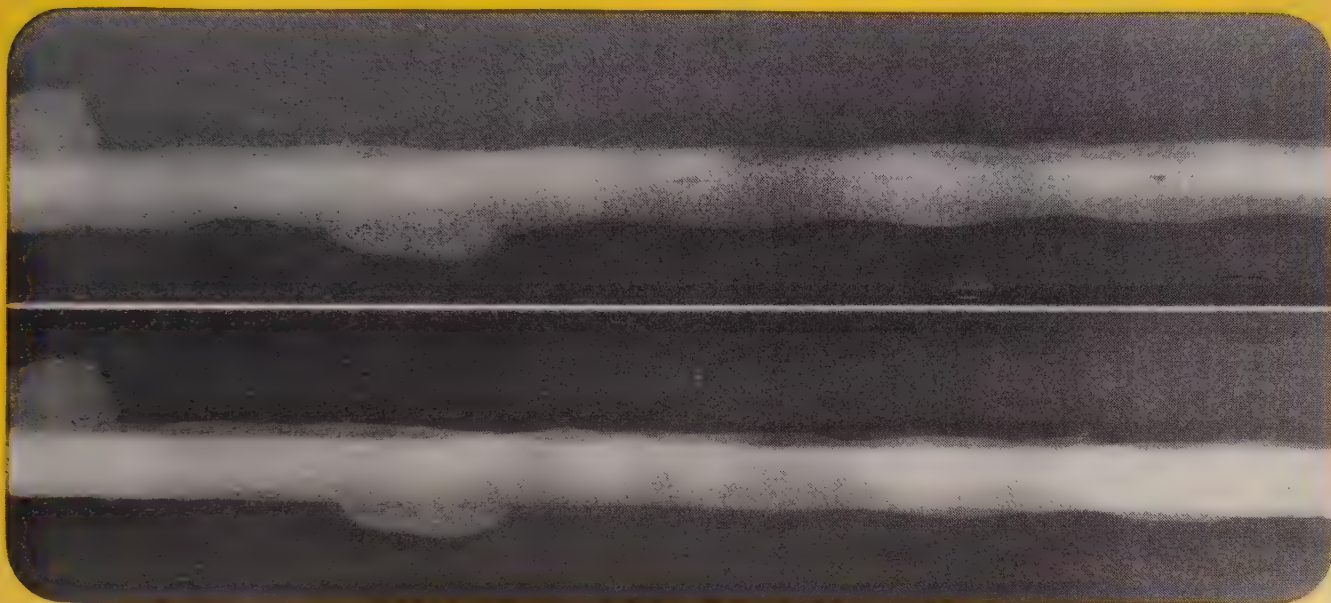
All phases of the problem of making connections to aluminum conductors will be studied by the electric power connector group of the switchgear section, National Electrical Manufacturers Association, in accordance with the deci-





Welded steam generator drum  
for heating and low-pressure services.

**Dependability up—  
cost and weight  
down—**



**thanks to  
RADIOGRAPHY**

**B**ECAUSE radiography proves it sound, welding can be used for making better pressure vessels. And with results such as these: In these steam boilers approximately 15% in weight was saved—costs dropped 10% to 20% dependent on design pressure.

Easy to see, isn't it, how radiography opens new fields for welding—why it increases business.

Radiography is quick to detect any serious lack of fusion or gas porosities in a weld. It can help you make sure only top-quality work leaves your shop.

If you would like to know more about how it can help you, get in touch with your x-ray dealer and talk it over.

**EASTMAN KODAK COMPANY**  
X-ray Division • Rochester 4, N. Y.

**Radiography . . .**  
another important function of photography

**Kodak**  
TRADE-MARK



sion made Nov. 12, during the annual NEMA meeting.

A review of available data and published information concerning the basic problems of material flow or creepage, surface protection and electrolysis has been initiated, and an application guide will be prepared as soon as possible.

### Thermostats Spot Tank Level

Thermostats solve the problem of keeping a continuous check on the operation of a liquid level controller in a hot asphalt tank at Flintkote Co., East Rutherford, N. J. The system, used in a 15-foot deep dip tank, also gives a positive visual alarm in case the controller fails to function.

Two rows of thermoswitches manufactured by Fenwal Inc., Ashland, Mass., each containing 11 units spaced 6 inches apart, are mounted on opposite walls of the tank. Rows are staggered vertically so that liquid level is actually measured at 3-inch intervals.

By connecting any three thermostats to the three pilot lights, depending on which liquid level is be-

ing maintained, the red, yellow or green light gives a constant level reading to the operator.

### Anchor Plate Output Boosted

Installation of two automatic heat treating furnaces designed to speed production and improve quality of agricultural implements and rail anchor products at Mid-West Forging & Mfg. Co., Chicago, was recently completed at the company's Chicago Heights plant.

Larger of the two units, a 40-foot convection heated draw furnace capable of treating 600 three-pound rail anchors per hour, produces anchors with a Brinell hardness variation of plus or minus 5 points. The other furnace, 19 feet long, treats spring steel bars at a rate of 3325 pounds per hour.

### Fork Trucks to Snow Plows

Snow plow attachments for use on all but their 1000-pound pneumatic-tired fork truck are available from Clark Equipment Co., Battle Creek, Mich.

The plow is a non-hydraulic at-

tachment which is adjusted manually to several blade angles, and which is mechanically adaptable to uneven ground surfaces. The ballast box, mounted directly over truck forks, may be loaded with any kind of material to provide drive-wheel traction.

### Analyzer Uses Geiger Counter

A Geiger counter x-ray spectrometer that provides at minimum cost a powerful analysis tool for use in research and educational fields as well as for production control is available from North American Philips Co. Inc., Mt. Vernon, N. Y.

Designed to provide a full standard range of operation, the new instrument employs a long-life, air-cooled x-ray tube and a goniometer having a radius of 130 millimeters. Angular range is minus 10 to plus 90 degrees. Angles can be read directly from a dial or from a strip chart.

The new instrument is easily aligned with gages and fixtures provided as part of the equipment. The 90 degree spectrometer has an

**EXTRA SERVICE**

**EXTRA SAFETY**

**15 MODELS**

**16 to 90 Ton**

**Bonus Built**

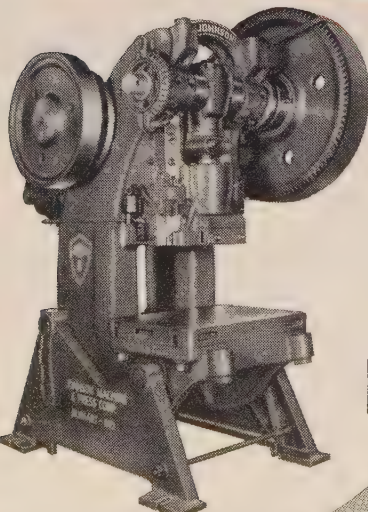
**JOHNSON**

**POWER PRESSES**

Will give more service for your production dollar because you can handle larger jobs on smaller presses.

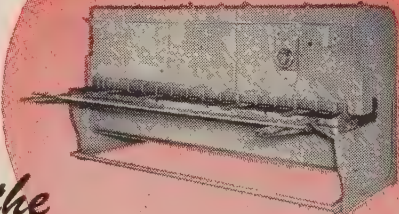
**RUGGED • DEPENDABLE • TIME-TESTED**

Heavier construction, extra safety features, a list of satisfied users are reasons for an ever-increasing demand for Johnson presses. There's a press for your job, too. Write us today.



**FAST, ACCURATE AND POWERFUL HYDRAULIC SHEARING IS HERE...**  
for mild steel up to 10 gauge

**the HYDRA-SHEAR**



The Hydra Shear surpasses all others in its field for smooth operation . . . no gears or clutch . . . less curl and burring . . . cannot be overloaded. Write for specifications.

**Johnson**

**MACHINE and PRESS CORP.**

620 W. INDIANA AVE. • ELKHART, INDIANA



heads---you win

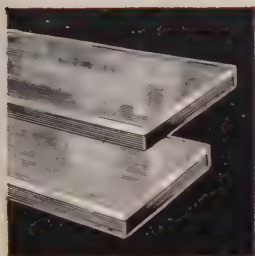


\*when they're made by

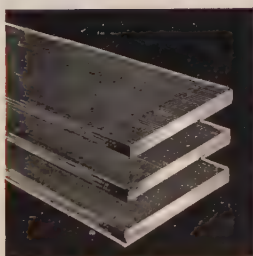
**CLAYMONT**



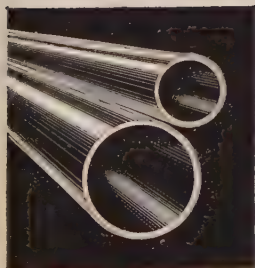
Flanged and Dished Heads



Stainless-Clad  
Steel Plates



Alloy and Carbon  
Steel Plates



Large Diameter  
Welded Steel Pipe

Whatever your needs in flanged and dished heads, you're a winner every time when you call for heads by Claymont.

We can always meet your most exacting specifications because with us the spinning of flanged and dished heads is more than just a job—it's an art into which we put the most painstaking care and specialized know-how.

Our flanging department can supply you with flanged and dished heads in diameters from 9 inches to 19 feet and in gauges from 3/16-inch to 6 inches. Made in carbon steel, alloy steel or with stainless steel cladding. We are also prepared to handle head forming operations on both ferrous and non-ferrous metal circles supplied by the customer.

Other Claymont products include Stainless-Clad Steel Plates, Alloy and Carbon Steel Plates, Large Diameter Welded Steel Pipe.

Write or call Claymont Steel Products Department, Wickwire Spencer Steel Division, Claymont, Delaware.

THE COLORADO FUEL AND IRON CORPORATION • Denver, Colorado  
THE CALIFORNIA WIRE CLOTH CORPORATION • Oakland, California  
WICKWIRE SPENCER STEEL DIVISION • Atlanta • Boston • Buffalo  
Chicago • Detroit • New York • Philadelphia

**CLAYMONT STEEL PRODUCTS**

PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION  
THE COLORADO FUEL AND IRON CORPORATION





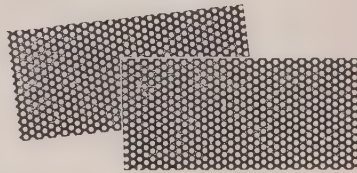
# Need any of these in BRASS or COPPER? Call CHASE!

You can count on Chase for service. Try us for brass, copper and bronze items such as these, whether your needs are for a few pounds or for a ton. Most orders can be

filled promptly, direct from our stock. Chase offices (23 of them warehouses) are located in major industrial centers from coast to coast. Call the one nearest you.



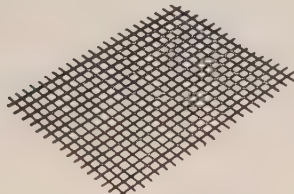
COPPER NAILS and TACKS  
COPPER STORM NAILS



PERFORATED METAL IN  
BRASS, BRONZE and COPPER



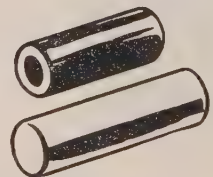
BRASS and COPPER  
RIVETS, BURS and WASHERS



INDUSTRIAL WIRE CLOTH and  
BRASS STRAINER CLOTH



INDUSTRIAL and  
AUTOMOTIVE FITTINGS



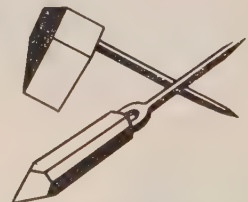
BEARING BRONZE BARS



BRASS and BRONZE  
BOLTS and NUTS



BRASS and BRONZE CAP,  
MACHINE and LAG SCREWS



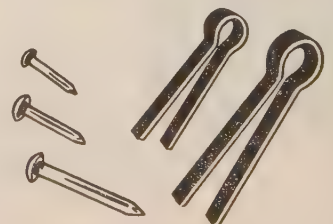
SOLDERING COPPERS

## Chase BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Denver†	Kansas City, Mo.	Newark	Pittsburgh	San Francisco
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Baltimore	Cleveland	Houston†	Milwaukee	New York	Rochester†	Waterbury
Boston	Dallas	Indianapolis	Minneapolis	Philadelphia	St. Louis	(sales office only)



BRASS COTTER PINS  
BRASS ESCUTCHEON PINS





## Bonding Without Pressure

One of Eutectic Welding Alloy Corp.'s new ChemoTec organic bonding agents is seen above in application technique. The company reports these agents overcome many problems arising from conventional joining of aluminum to copper. In no instance is there need for pressure bonding equipment

on-off shutter for beam cutoff and a scatter shield to reduce stray radiation. The Geiger counter is a special tube which is volume-sensitive to x-rays.

## Twist Drill Types Cataloged

A catalog covering a variety of types of twist drills and listing drill sets, drill and reamer blanks, countersink sets, extension sockets, sleeves and holders was published recently by DoAll Co., Des Plaines, Ill.

Instructions for drill pointing and web thinning and a table giving decimal equivalents of drill sizes are also included. Copies are available through company service stores or main office.

## Research Reports Available

Metallurgical advances that are helpful to the automotive, aircraft, and other metalworking industries are described in a group of research reports made available to the public by the Office of Technical Services, U. S. Department of Commerce.

Some of the main listings under which the various reports are made

# SMALL STAMPINGS

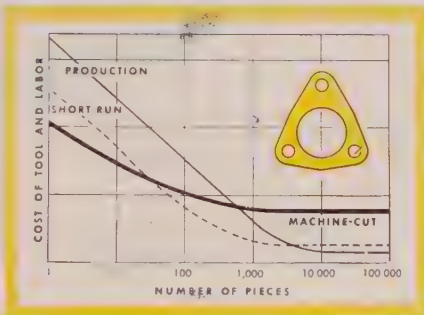
## A COST-SAVING, VERSATILE APPROACH TO THEIR MANUFACTURE

Possibly you've always thought that a quick look at the quantity involved decides how a stamping shall be made. Sometimes it is done that way but it isn't the sure way to lowest costs.

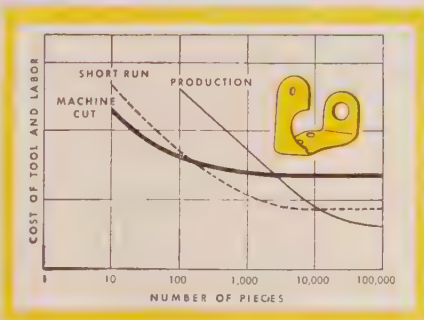
A more scientific approach by the STAMPINGS DIVISION of the Laminated Shim Company in Glenbrook, Connecticut frowns on the term "short run stamping." There is what is known as the short run method but there is no definite dividing point between short run and production quantities. Contour, tolerances, material, many other items all affect the manufacturing method when costs are being carefully figured.

## NO ONE METHOD IS ALWAYS CHEAPEST; THREE ARE NEEDED

**Machine-Cut Method:** The STAMPINGS DIVISION goes one step further than Short Run and Production Methods. The Machine-Cut Method, though not strictly a stamping operation is a valuable addition to stamping procedure. Custom built slitters, cutters, saws and files use experience-gained techniques to fashion the smaller quantities of parts. No dies are made; only stock punches are used. Obviously labor cost is understandably high but there is no tool charge.



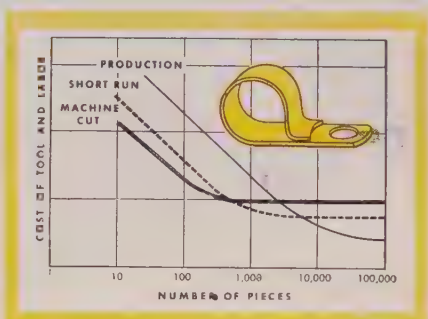
**Short Run Method:** As quantities increase (and depending upon the complications of contour, material, etc.) the economy of a temporary blanking die must be considered to eliminate the labor expense of machine-cutting. When this point is reached, manufacture is by the Short Run Method and the blanking is supplemented by other bench press operations. Here labor cost is at a medium level but a modest tool charge is incurred.



**Production Method:** As quantities increase the Production Method using standard dies with high speed automatic presses becomes more attractive. A relatively high tool charge can then be amortized over a great number of parts. Labor charge is negligible.

The Production Method as developed by the STAMPINGS DIVISION is offering unusual cost saving possibilities because of the new low-cost, full service Hecht-type die developed by the company for certain applications.

It is interesting to note that sometimes a very small quantity of parts would require a standard die because of complications or close tolerances or tough materials involved. Thus occasionally a very small quantity goes into the production classification.



## LOWEST COST IS ASSURED WHEN SUPPLIER HAS ALL THREE METHODS

The illustrations show typical stamped parts along with relative costs and breaking points for each of the three manufacturing methods. Unless a supplier can offer all three, his costs cannot always be low. For a given quantity, only one method can be most economical.

## ONE OR ONE MILLION PARTS FROM SAME SUPPLIER

An important corollary to the above is that an experimental part in small quantities can be handled by the same supplier when full production quantities are needed.

Further, it is important that a supplier be fully informed, if possible, on later or total requirements for a given part. As the charts point out, such information will affect manufacturing method and make possible cost reductions.

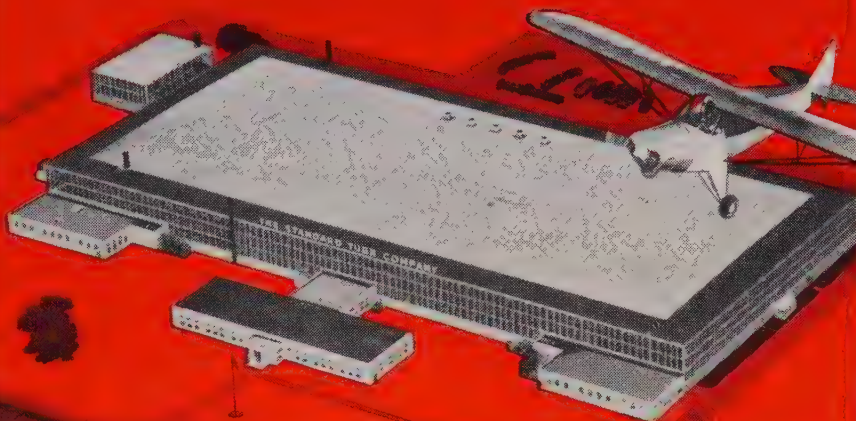
## FURTHER INFORMATION AVAILABLE

An illustrated 12 page brochure describing in greater detail the methods mentioned above is available on request to the STAMPINGS DIVISION Laminated Shim Company, Inc. 3412 Union Street, Glenbrook, Conn.



# IN PEACE TIME DEFENSE TIME EVERY TIME

MAKE **"Standard"** YOUR SOURCE  
FOR WELDED TUBING EFFICIENTLY PRODUCED!



**Specially Designed  
New Modern Plant with  
Complete Facilities for Production of:**

- ★ Welded Mechanical ★ Boiler and Heat Exchanger
- ★ Welded Stainless ★ Exclusive "Rigidized" Patterns

## **Complete Range of Electric Weld Tubing for Structural, Mechanical and Pressure Applications**

Here in this great new plant are the most modern and complete facilities for the manufacture of Welded Steel and Stainless Steel tubing found anywhere. Let "Standard's" specialists help you!



**ROUND • SQUARE • RECTANGULAR • SPECIAL SHAPES  
Including UPSET • FLARED • FLANGED • TAPERED**

STEEL TUBING SIZES: ½" O.D. to 5½" O.D. .028 to .260 wall  
STAINLESS SIZES: ¾" O.D. to 3" O.D. .028 to .095 wall

include titanium alloys, protective coatings, high temperature metals, and x-ray spectroscopy. These have all recently been cleared of secrecy restrictions.

## **Maintenance Show Readied**

TWO SESSIONS of the forthcoming Plant Maintenance Conference will be devoted exclusively to a discussion of maintenance in steel mills and fabricating plants, two more to maintenance in foundries.

The conference takes place at Public Auditorium, Cleveland, Jan. 19-22, concurrently with the Plant Maintenance Show. In all, thousands of machines and products needed in maintenance will be exhibited.

Sessions devoted to steel mills and fabricating plants, and those devoted to foundries, will be round-table discussions. They will be held simultaneously. First session will take place Tuesday, Jan. 20, from 2 to 4:30 pm; the second at the same time the next day. Those attending the first session will be encouraged to submit questions for answer at the second meeting.

**General Sessions**—In addition to the special sessions mentioned, there will be 62 other meetings dealing with general aspects of plant maintenance. These include such subjects as preventive maintenance, sanitation, lubrication, incentive systems, power plants, pumps and piping, maintenance stores, training workers, maintenance budgets, lighting, work standards, building maintenance, electrical and mechanical equipment maintenance, corrosion control and similar problems.

**Divided by Size**—Problems depending on size of plant and maintenance force will be treated separately so that executive personnel from small, medium-sized and large plants may discuss those subjects most directly involved in their own operations.

Advance registration cards may be obtained from Clapp & Poliak Inc., New York.

## **Shaper Data Published**

Descriptions, design features and complete specifications on both their standard and heavy duty lines of shapers are contained in



**HOW CAN YOUR PLANT BE IN**

***Chicago.....***



**AND YOUR RING DEPARTMENT IN**

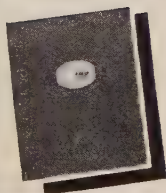
***Philadelphia?***

Far be it from us to tell you where in your plant the ring department should be. So far be it, matter of fact, we'd say "Nowhere!"

We *would* like to tell you of the advantages of establishing King as your ring department . . . no matter where your home plant may be.

Economy, efficiency, speed—these and more pluses may suggest themselves to you. We'd like to give you the complete story.

King is as close as your telephone. Call NEbraska 4-2444 now and reverse charges.



Ask for your  
copy of the  
1953 Catalog

**K**<sup>king</sup>

**FIFTH WHEEL COMPANY**  
2917 NORTH SECOND STREET, PHILADELPHIA 33, PA.





# WILLSON

dependable  
eye protection

keeps you on the safe side

WILLSON SAFETY EQUIPMENT

Combined protection, comfort and appearance make Willson safety spectacles outstanding in value. Choose from a full range of metal and plastic frames—fitted with Super-Tough\* heat-treated glass lenses, or Plas-Tough\* plastic lenses—every one tested for impact resistance and optical quality. Send for catalog describing our complete line of safety equipment.

STYLE AH



**METAL FRAME** Latest style spectacle with single bridge. Have Hi-Line temples with a "dressy" look. Also available with side shields. (Non-flammable plastic frame Style WKS shown at top.)

#### CHOOSE YOUR

FAVORITE

LENSES

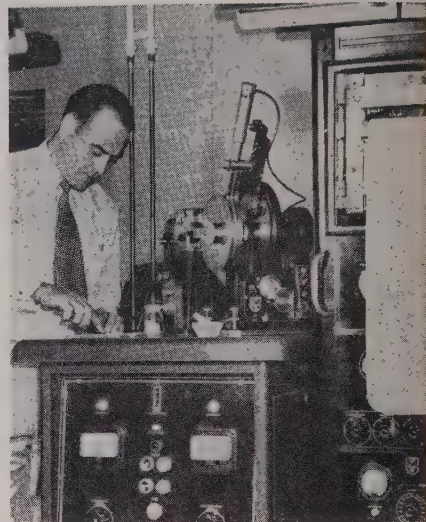
FOR

ANY WILLSON SPECTACLES



Three popular types of lenses are available for all Willson Spectacles. Clear glass Super-Tough\*, Willsonite® Green Super-Tough\* and the new Plas-Tough\* lenses that combine the impact resistance of heat-treated glass with the comfort of lightweight plastic.

\*Trademark



### X-Ray Analysis

A research analyst at National Carbon Co.'s research laboratories, Cleveland, works with x-ray diffraction equipment made by North American Phillips Co. Inc., to gain identification and quantitative results. Study here involves phase relations of rare earth compounds, crystal growth of graphite, magnesium dioxide structure

the 12-page catalog published by Smith & Mills Co., Chicago.

Illustrated with two views and full explanation is the patented Smith & Mills solid ram with self-locking mechanism which holds the "ram-to-work" setting. Catalog is available through company offices in Chicago.

### World Electric Code Studied

Nineteen countries were represented by 418 delegates at a series of meetings of International Electrotechnical Commission held at Scheveningen, Holland, in September. Fourteen delegates from the U. S. participated in the meetings dealing mainly with standardization of electrical equipment and components.

### Continuous Galvanizing Praised

Continuous galvanizing processes in sheet metal manufacture have been a boon to steel fabricators, according to James L. Yates, general manager of manufacturing, Inland Steel Products Co., Milwaukee, speaking to members of American Zinc Institute, Galvanizers Committee.

Stronger bond between zinc and steel achieved through the contin-

See your WILLSON distributor or write for Catalog  
WILLSON PRODUCTS, INC., 233 Washington St., Reading, Pennsylvania



Behind The

**J&L  
STEEL**

Trade Mark



photograph by d'Arazien

## **MANPOWER and KNOWLEDGE...** two principal ingredients of J&L steel

MEN make steel. No mistake about it, muscle and brains are used a-plenty in the myriad processes from ore to ingot to finished products of Controlled Quality J&L Steel.

In the old days steel was as good or as bad as the iron-master's skill. Now, because improved equipment and technical knowledge have taken out guesswork, you get uniform performance from J&L steel, order after order, day after day. But there's more to steel-making than machines and technical knowledge. And there's more to a man than muscle and brains.

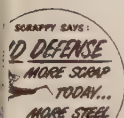
J&L's management knows that. That's why these J&L supervisors who have come right off their jobs in the mills are meeting.

This particular discussion was not for the purpose of exchanging knowledge about steel, though that is done, too, at the proper times. These men, under the guidance of a skilled conference leader, have come together to learn how to help solve the human problems that come up on the job every day.

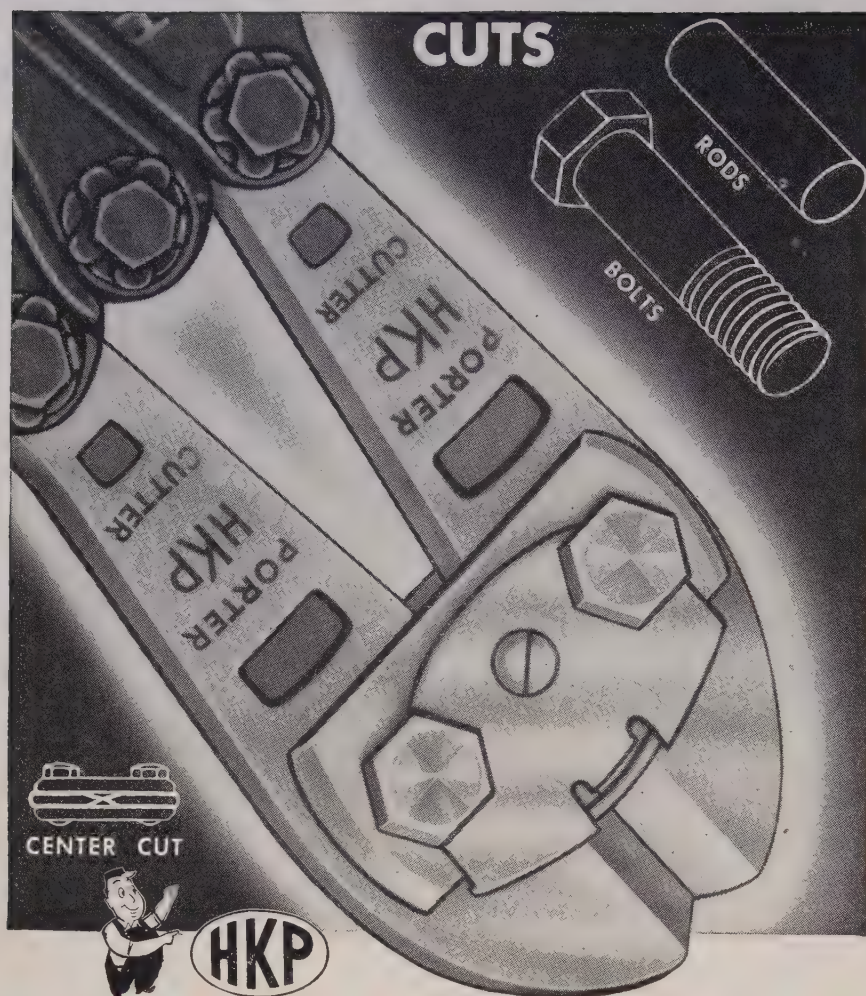
It is only one of the groups of J&L men who meet regularly to learn more about economics, human relations, and why the J&L management does things in a particular way.

This sharing of knowledge and experience, understanding, and teamwork among steelmen—is just one of the activities going on behind the J&L trademark, all directed toward one end—better steel for you.

**JONES & LAUGHLIN STEEL CORPORATION**  
**PITTSBURGH 30, PA.**







## "If it's metal . . . I'll cut it"

A two-hand, portable, on-the-job tool to cut round stock — bolts or rods. Multiplies applied power 80 times — 50 pounds on the handles means approximately 4000 pounds at cutting edge — and cuts easily in one movement and one second of time.

Saves labor, saves time, saves money — in shop or on the job. Sizes to cut from  $\frac{1}{4}$ " up to  $\frac{3}{4}$ " annealed bolts in thread.

Other models to cut flat stock, bars, wire, stranded wire rope, straps, chain, cable, etc. Made in fine tool quality to stand up in long hard usage. Every Porter Cutter you can use in your plant on repairs, dismantling, servicing or maintenance saves you money — get acquainted with the Porter Cutter line — write for catalog and consult your Industrial Supply House.

50 pounds pressure on the handles delivers approximately 4000 pounds at cutting edge.

H. K. PORTER, INC.  
Somerville 43, Mass.

**PORTER**  
on the job  
**CUTTERS**



uous strip process permits the manufacturer to form detailed products from galvanized sheets rather than dipping them after forming. The more uniform zinc coating simplifies press work and eliminates damage to dies and equipment caused by varying thickness of material, he claimed.

### Ryan Expands Titanium Work

A second contract in research and development of titanium for application to aircraft production has been awarded Ryan Aeronautical Co., San Diego, Calif. Navy Bureau of Aeronautics has ordered the manufacture and testing of a large number of specimens typical of airframe construction.

Award of this contract follows closely an earlier Air Force order aimed at determining the best methods of processing titanium for use in conjunction with exhaust systems. The new contract will provide information needed by the aircraft industry regarding optimum application to aircraft structures of titanium and titanium alloys as compared with aluminum alloys and stainless steel. Ryan was one of the first U.S. companies to form titanium successfully by the drop hammer process. Research at its own expense was started in August, 1951.

Extremely expensive because of high costs of refining from the ore, titanium now costs as high as \$25 a pound. The first shipment of titanium sheets under Air Force and Navy contracts is due at the company's plant in about two months. The work, on a long-term basis, will be performed under supervision of the engineering department in the development laboratories.

### 50-Ton Safe Guards U.S. Relics

Three of America's most priceless documents, the Bill of Rights, Declaration of Independence and Constitution, will soon be put gently to bed every night in a special safe built by Mosler Safe Co., Hamilton, O.

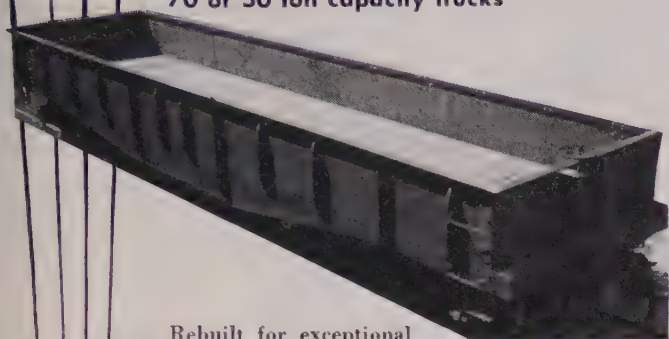
The giant safe, only one of its kind, will have a built-in elevator which will raise the documents every morning and lower them back into the safe at night. To make



# Available!

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furnished with either  
70 or 50 ton capacity trucks



Rebuilt for exceptional heavy duty service, these cars are in excellent condition and can withstand severe abuse, particularly where clam shell buckets or magnetic cranes are used for loading and unloading.

Each car is reconstructed with an inside height of 2 feet 6 inches to reduce the possibility of overloading breakdowns. Whether used for railroad interchange, industrial service or mill type service, these cars will prove efficient and economical to operate.

CFC Gondola cars are reconditioned to include these special features:

- New welded steel floors up to  $\frac{1}{2}$ " in thickness as specified by customer
- New steel sides and ends up to  $\frac{3}{8}$ " in thickness as specified by customer
- New side and end top chord angles
- Double fish belly type center sills built of steel plate and angles 17" deep at body bolster to end sill and 24" deep at the center of the car. Center sills are continuous.
- Fish belly type side sills 24" deep at center of car
- AB, KC type or straight train line air brakes as specified.

Each car is put into first class operating condition by skilled workmen in Chicago Freight Car's own shops. Built in 1926, these gondola cars will give many years of rugged service. They are priced to give you exceptional values and are ready for prompt delivery.

### GENERAL SPECIFICATIONS

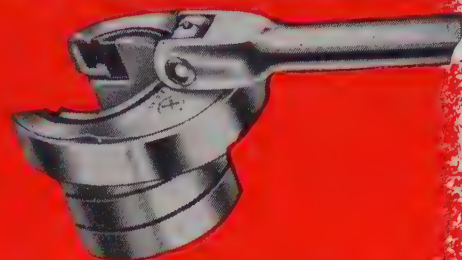
Capacity, nominal .....	100,000 lbs.
Light weight, approx. ....	48,000 lbs.
Load limit .....	121,000 lbs.
Inside length .....	38 ft. 4 in.
Inside width .....	9 ft. 0 in.
Inside Height .....	2 ft. 6 in.
Length over strikers. ....	40 ft. 6 in.

Write for specification sheet  
giving complete data.



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# this wrench



## can slash your costs 3 ways

### TAC Open End Ratchet Wrench

delivers incredible savings wherever "tight" situations prevail involving tubing, pipe, conduit, cable or long studs. Saves at least three ways:

1. **CUTS TIME** on production or maintenance operations because it slips around tubing and down fittings, where you ratchet off or on in mere seconds. Functions perfectly with as little as 7° arc clearance for handle. Reduces workman injury too—TAC can't slip off the work and skin up knuckles.
2. **CUTS COST** on fittings, tubing, etc. Snugs down on fittings, never "barks" or scars the hex fitting.
3. **REDUCES INVENTORY OF HAND TOOLS** required in your tool crib. Several sockets, a few head sizes, and you eliminate over half the wrenches you'd otherwise maintain.

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this possible, the 50-ton safe's massive doors will be located on the top.

The safe is bomb, fire, burglary and water proof. It is reputed to be the largest in the world.

### Adhesive Tapes Save Drafting

Plant layout planning using pre-printed Labelon adhesive tape to eliminate drafting of repetitive symbols is saving costly drafting time in more than one-third of all General Electric Co. plants, ac-

cording to officials of Labelon Tape Co., Rochester, N. Y.

The new tape is reported to save not only drafting time, but also simplifies changes in temporary layouts. These can be made by stripping off the tape from its original position and placing it wherever wanted.

All standard symbols for walls, aisles, conveyors, monorails, center lines, columns, shafts, stairways, etc. are available in either 324 or 648-inch rolls, scaled 1/4-inch

to 1 foot. Transparent or opaque tapes for reproduction on standard ammonia vapor or photo-copying machines are available.

### RCA Shows Electronic Savers

New uses of electronics in the power industries that may save money, time or life of heavy industrial machinery was the theme of the Radio Corp. of America exhibit at the Exposition of Power and Mechanical Engineering held in New York, Dec. 1-6.

Closed circuit television for industrial uses, metal detection equipment, microwave radio communications, and electron microscopy were the devices shown.

### Upgrading Executives

NEW ATTACK on the shortage of qualified top executives has been launched by American Management Association through a program to train businessmen in the technique of developing their subordinates to fill higher positions.

The training program, designated orientation seminars on management development, consists of three two-day meetings offering actual instruction, combined with drill and practice, in the fundamentals of this field. The first series runs Nov. 10-11, Dec. 15-16 and Jan. 12-13; an additional series, Dec. 1-2, Jan. 19-20 and March 2-3; a third, Dec. 8-10, Jan. 26-27 and March 16-17. All will be held at the association's headquarters in New York.

Four basic steps in management development are covered: Inventory of present executives and probable successors, review of executives' potentialities for advancement, the counseling interview to help executives discover their strengths and weaknesses and what to do about them, and application of specific techniques to develop those individuals.

**Practice Sessions**—Lectures and demonstrations are followed by small-group practice sessions designed to develop facility in coaching the various fundamental techniques. Attendance in each group will be limited to thirty persons so that practice sessions may be kept to not more than six members each.

By spreading each series of two-

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**ROUND or FLAT STEEL!**

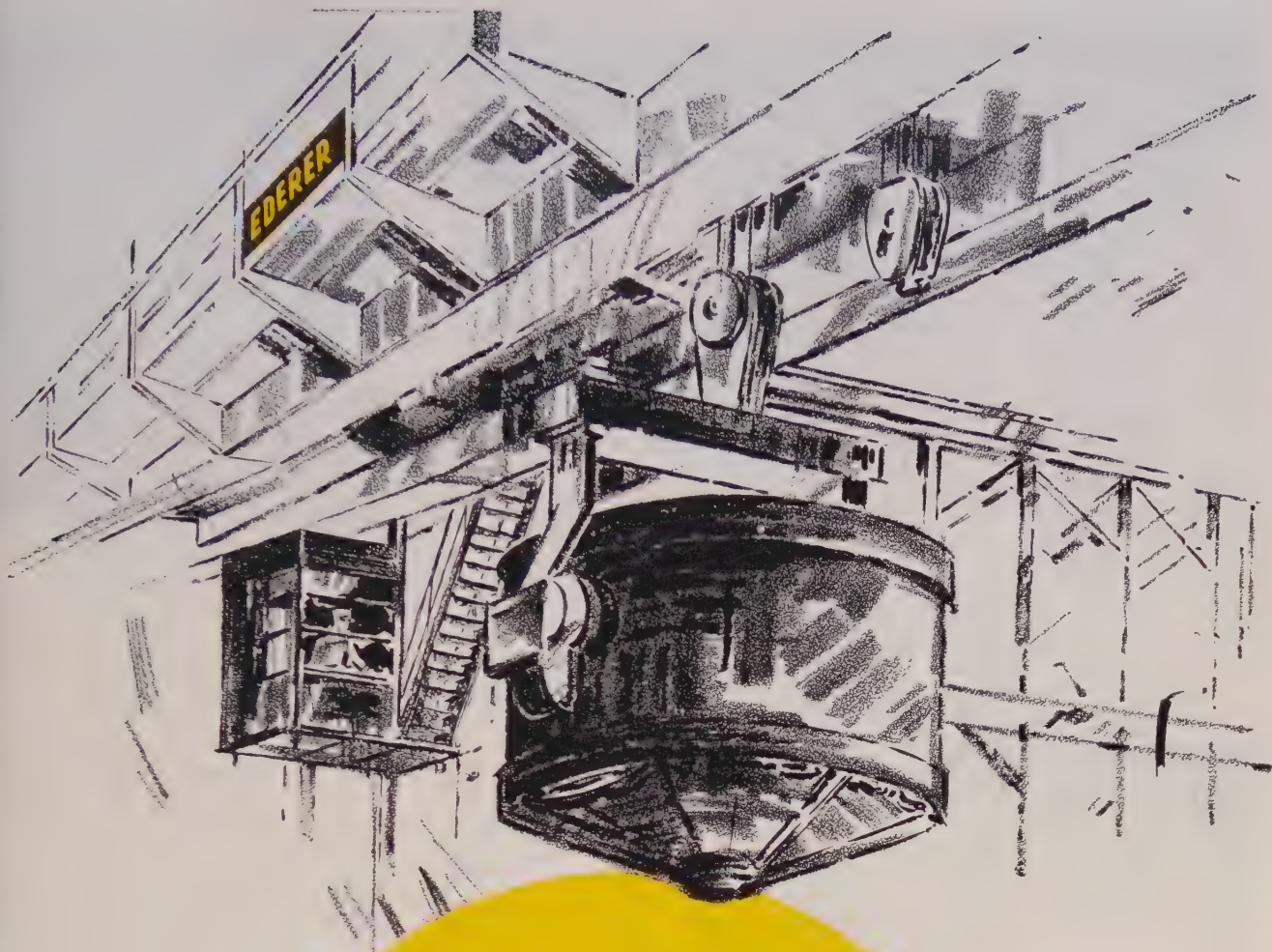
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# CRANES

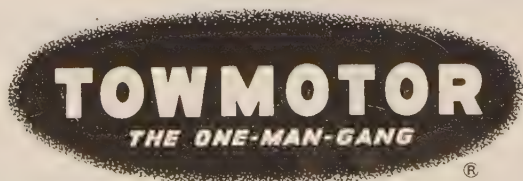




Towmotor stacks bundles of pulp 8-high at Rising Paper Co., Housatonic, Mass.

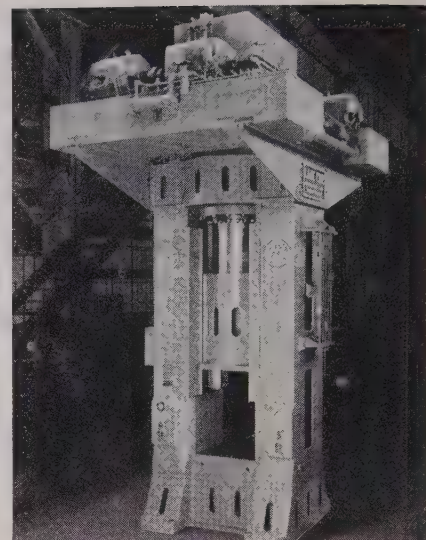
## Just takes a touch —

for one man—*any man*—to put capacity loads anywhere they're wanted with Towmotor. Just the man-hours saved on *any one* handling job soon pay for Towmotor . . . often within a few months. And Towmotor Mass Handling equipment is built to guarantee *continuous* mass savings. For your copy of "Man-Hour Thieves," a guide to greater production efficiency, and name of your nearest Towmotor Representative write Towmotor Corporation, Div. 16, 1226 E. 152nd St., Cleveland 10, Ohio.



### FORK LIFT TRUCKS and TRACTORS

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### Cold Extrusion Line

Shown during erection at Lake Erie Engineering Corp., Buffalo, is the smallest of a complete line of hydraulic presses ordered by Central Foundry, Holt, Ala. The presses are installed under Army Ordnance sponsorship for making steel artillery shells by the cold extrusion process.

day meetings over a period of several months, participants may return to their companies to apply the techniques learned, and thus prepare themselves for the next stage of the development process. On the final day of the series, the chief executive of each organizational unit represented in the seminars will be invited to attend as AMA's guest to receive a concise picture of his role in the management development procedure.

### Type 430 Stainless Draws Well

Proof that type 430 stainless steel, a defense alternate for type 302, can be successfully drawn is offered by Armco Steel Corp., Middletown, O. A sink bowl, 6 to 6 $\frac{3}{8}$  inches deep, 13 $\frac{1}{2}$  x 15 $\frac{1}{2}$  inches, has been made in one draw without annealing, the company reports, from 20 gage type 430, 2B finish steel.

### Bulletin Covers Hand Pumps

Hand pumps in sizes from 7 to 28 gpm for pumping practically any liquid from drums, wheel tanks or underground storage are illustrated and explained in a 6-page bulletin prepared by Blackmer Pump Co., Grand Rapids, Mich. Copies are available free of charge by writing the company.





### Fire-Fighting Truck

Although versatility is the keynote in fork lifts, this Yale truck served even beyond its manufacturer's claims. Pressed into service to aid in fighting a crude rubber fire at General Tire & Rubber Co., Akron, the truck moved water-drenched outside bales so firemen could get a clear shot at the molten interior of the stockpile

### Compression-Formed Tubes Gain





Closer tolerances, better machinability and superior finishes are reported through use of the Rock-rite process for cold-sizing tubes by compression instead of tension. The process, used by Tube Reducing Corp., Wallington, N. J., is also producing finished tubing for cylinder applications.

Compression-forming is a departure from the long-used cold-drawing process. In compression-forming, the desired reduction is obtained by rocking special dies back and forth over a stationary tube. The metal of the tube is compressed against a precision-sized polished mandrel which controls the inside diameter.

### Panel Treats Engineer Shortage

Expanded guidance programs to steer young people into science courses at the earliest possible age, and better utilization of the new crop at the end of each college year, are the chief answers to shortages of scientists and engineers. These were conclusions of a panel discussion at the Scientific Apparatus Makers Association midyear meeting.

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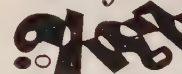
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210-Q SOUTH STREET, BOSTON 11, MASS.

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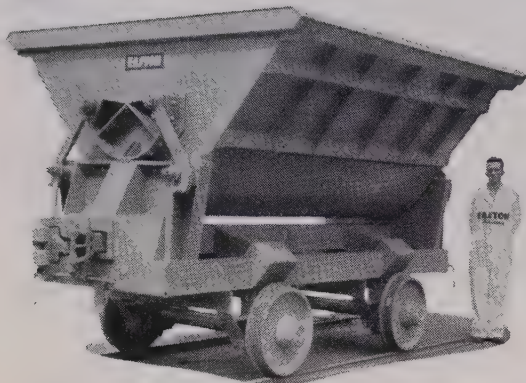
Name & Title.....

Company.....

Address.....

City & State.....

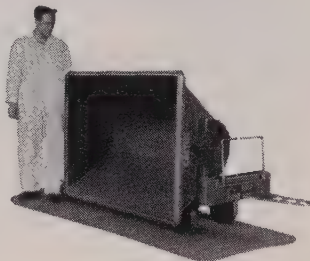




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## CALENDAR OF MEETINGS

**December 7-10, American Institute of Chemical Engineers:** Annual meeting, Hotels Cleveland and Carter, Cleveland. Institute address: 120 E. 41st St., New York 17. Secretary: Stephen L. Tyler.

**December 11, American Iron & Steel Institute:** Regional technical meeting, Hotel Warwick, Philadelphia. Institute address: 350 Fifth Ave., New York 1. Meeting director: Frank Ragland.

**December 16-17, Industrial Truck Association:** Winter meeting, Hotel Statler, New York. Association address: 900 F St. NW, Washington 4. Secretary: Wm. Van C. Brandt.

**December 18, Material Handling Institute:** Annual meeting, Hotel Statler, New York. Institute address: 731-732 DuPont Circle Bldg., Washington 6. Managing director: R. Kennedy Hanson.

**January 11-13, Institute of Scrap Iron & Steel:** Annual meeting, Hotel Commodore, New York. Institute address: 1729 H St. NW, Washington 6. Executive vice president: Edwin C. Barringer.

**January 12-13, Industrial Furnace Manufacturers Association:** Winter meeting, Hotel Cleveland, Cleveland. Association address: 420 Lexington Ave., New York.

**January 12-16, Society of Automotive Engineers:** Annual meeting and engineering display, Hotel Sheraton-Cadillac, Detroit. Society address: 29 W. 39th St., New York 18. Secretary: John A. C. Warner.

**January 13, Mining & Metallurgical Society of America:** Annual meeting, Mining Club, New York. Society address: 11 Broadway, N. Y. Secretary: Lt. Col. Donald M. White.

**January 15-17, National Tool & Die Manufacturers Association:** Winter quarterly meeting, Sorrento hotel, Miami Beach, Fla. Association address: 907 Public Square Bldg., Cleveland. Secretary: George S. Eaton.

**January 19-22, Plant Maintenance Conference:** Cleveland Public Auditorium, Cleveland. Managers: Clapp & Pollak Inc., 341 Madison Ave., New York 17.

**January 19-23, American Institute of Electrical Engineers:** Winter general meeting, Hotel Statler, New York. Institute address: 33 W. 39th St., New York 18. Secretary: H. H. Henline.

**January 20-22, Caster & Floor Truck Manufacturers Association:** Winter meeting, Roosevelt hotel, New York. Association address: 27 E. Monroe, Chicago. Secretary: H. P. Dolan.

**January 21-22, Steel Shipping Container Institute Inc.:** Winter meeting, Pierre & Hampshire House, New York. Institute address: 600 Fifth Ave., New York 20. Secretary: L. B. Miller.

**January 22, American Coke & Coal Chemicals Institute:** Regional meeting, Edgewater Beach hotel, Chicago. Institute address: 711 14th St. NW, Washington 5. Executive secretary: Samuel Weiss.

**January 22-23, Steel Plate Fabricators Association:** Annual meeting, Palmer House, Chicago. Association address: 37 W. Van Buren St., Chicago. Secretary: Dwight Evans.

**January 23, Malleable Founders' Society:** General meeting, Hotel Cleveland, Cleveland. Society address: Union Commerce Bldg., Cleveland 14. Managing director: Lowell D. Ryan.

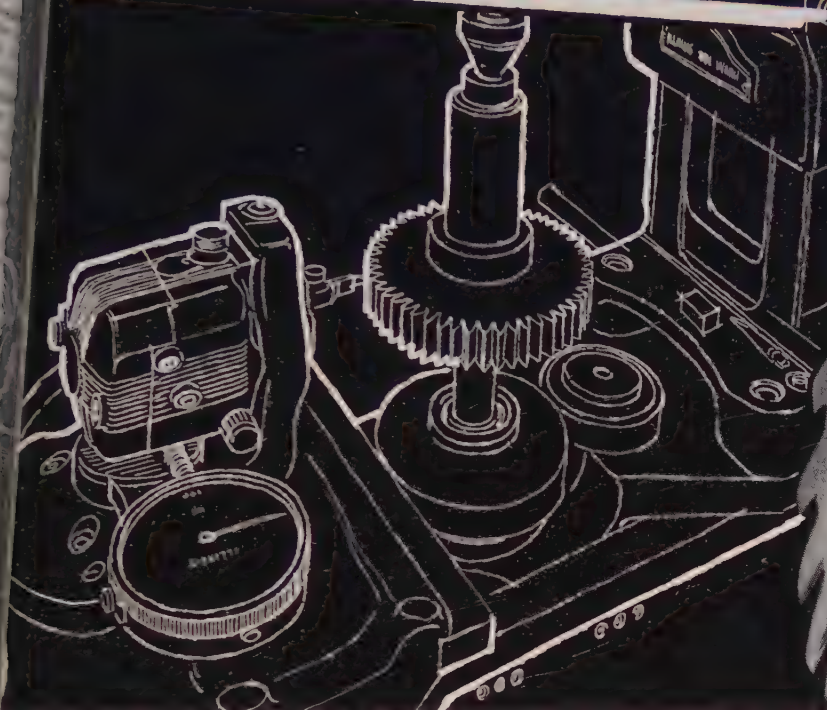
**January 26-28, Truck-Trailer Manufacturers Association:** Annual meeting, Edgewater Gulf hotel, Edgewater Park, Miss. Association address: 1024 National Press Bldg., Washington. Managing director: John B. Hulse.

**January 26-30, American Society of Heating & Ventilating Engineers:** International heating and ventilating exposition, Grand Central Palace, New York. Society address: 51 Madison Ave., New York 10. Secretary: A. V. Hutchinson.



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**UNITED STATES STEEL**



# NEW

# PRODUCTS and equipment

Reply cards on page 159 will bring you more information on any new products and equipment in this issue

## Long-Railed Sheet Saw

... handles 4 x 8-foot sheets

Model MLR-1 saw is available with rails up to 10 feet long and handles 4 x 8-foot sheets with ease. Rails can be tilted from zero to 90 degrees for mitering or rabbeting. Depth of cut is controlled by raising and lowering the screw jack



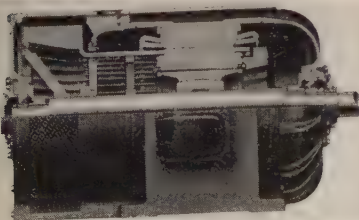
at each end. Saw is drawn through the stock rather than stock being pushed across the table. Hendrick Mfg. Corp., Dept. ST, 11 Selman St., Marblehead, Mass.

USE REPLY CARD—CIRCLE No. 1

## High-Slip Induction Motor

... smaller, lighter design

This totally-enclosed, fan cooled high slip induction motor is built to accelerate high-inertia loads such as punch presses and hoists. The type KRX is said to be as



much as 30 per cent smaller and 40 per cent lighter than conventional units of similar design. Space and weight reduction are results of an extended-bar design

that provides for dissipation of increased heat normally generated by high-slip motors.

The model is available in 30 to 150 hp at 900 and 1200 rpm, 5 to 8 and 8 to 13 per cent slip. Voltage ratings are 220, 440 and 550. General Electric Co., Dept. ST, Schenectady 5, N. Y.

USE REPLY CARD—CIRCLE No. 2

## Sheet Metal Power Notcher

... cuts down die expense

Power machine built for notching sheet material saves a large part of the cost of expensive dies



and heavy presses in some metal-working operations. A notch as large as 6 x 6 inches can be made in 16-gage sheet. Notches larger and smaller than 90 degrees, as well as some straight shearing jobs, can be performed after a few simple adjustments.

Production rate reaches 180 strokes per minute. The machine operates by foot actuated clutch that leaves both of the operator's hands free for work handling. All moving parts are housed in the

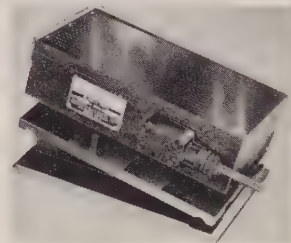
steel cabinet, eliminating considerable danger to the operator. Work table is 12 x 18 inches. O'Neil-Irwin Mfg. Co., Dept. ST, 619 Eighth Ave., Lake City, Minn.

USE REPLY CARD—CIRCLE No. 3

## Magnetic Sine Chuck

... simplifies angular setups

Magnetic sine chuck providing advantages of magnetic chucking,



the Magna-Lock sine chuck, is designed to permit precision angular setups on surface grinders in minutes instead of hours. Simplicity is assured by absence of dials or gages to interpret. Standard gage blocks insure maximum accuracy.

Gage blocks required for a particular single-angle or compound-angle setup are determined quickly by reference to a table of constants. Magna-Lock Inc., Dept. ST 1600, Big Rapids, Mich.

USE REPLY CARD—CIRCLE No. 4

## Automatic Boring Mill

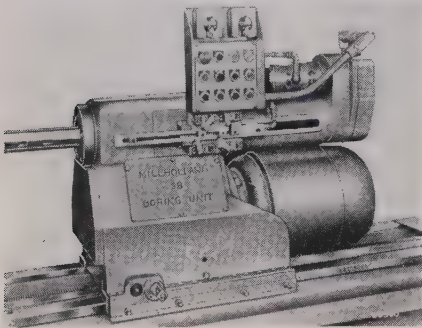
... spindle speed: 33-500 rpm

Model 3B boring mill is basically a fixed-center horizontal unit with automatic cycle. Speed of the 3-inch diameter spindle is ranged from 33 to 500 rpm by pick-off gears. Body is heavily proportioned and box ribbed semisteel casting. Sleeve is contained at the forward end in two precision Timken bearings and the rear mounted



third bearing is permitted to float.

Feed mechanism is operated by means of a hydraulic pump and fluid motor. System of valves and piping allows cycle adjustments



within the range specified. W. K. Millholland Machinery Co. Inc., Dept. ST, 6402 Westfield Blvd., Indianapolis 20, Ind.

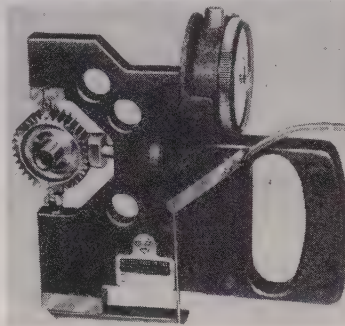
USE REPLY CARD—CIRCLE No. 5

### Dial Pitch Diameter Gage

... checks gear over-roll

External pitch diameter gage checks any over-roll measurement of gears and splines. Gage employs

the rotatable cam principle featured in the Nilsson standard dial snap



gage to avoid lost motion between gaging anvil and indicator. Floating rolls simulate standard over-roll measurements, with rolls as gaging points. Handles are removable and interchangeable. They can be removed to check wear or for replacement by larger or smaller rolls to fit user's diverse requirements.

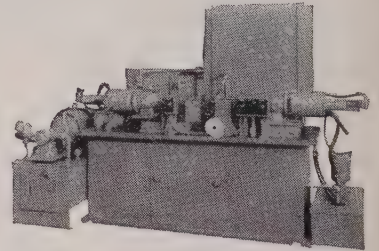
Gage has a retracting lever that collapses the gaging roll and allows the gage to clear the outside diameter of the gear or spline. The unit is equipped with a 0.0001-inch

indicator. Nilsson Gage Co. Inc., Dept. ST, Poughkeepsie, N. Y.  
USE REPLY CARD—CIRCLE No. 6

### Drilling, Deburring Machine

... rate: 260 pieces per hour

Electrically interlocked machine drills and deburrs six holes in a steel disk, turning out about 260 pieces per hour. The machine in-



corporates two automatic drilling units, each equipped with a six-spindle multiple head.

Operator loads the part on a locator where it is automatically clamped. One unit then feeds in automatically to drill, the second feeds automatically from the opposite side to deburr. After debur-

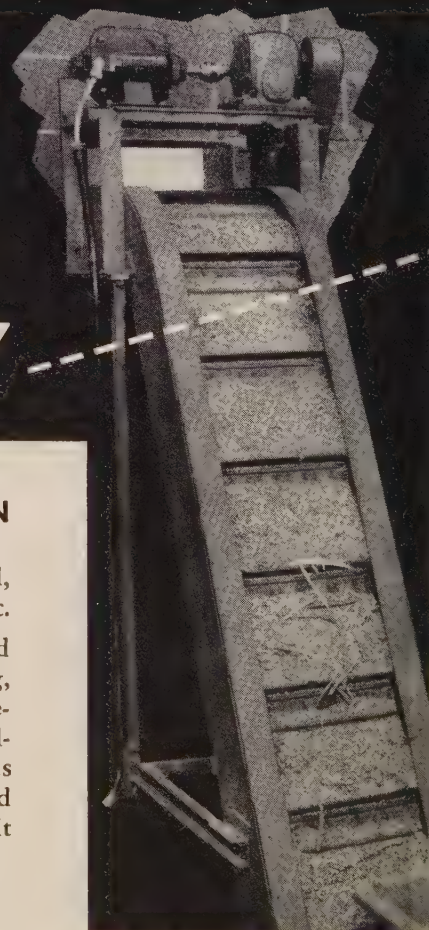
# how the MAY-FRAN CHIP-TOTE works for INDUSTRY

## AUTOMATIC SCRAP REMOVAL STEPS-UP PRODUCTION

CHIP-TOTES can remove borings, turnings and chips from practically all high-production machine tools while they are operating. These time-saving conveyor units are assembled from stocked component parts to meet specific requirements of each application. Their design permits flexibility of installation according to type of machine tool,

type of metal scrap, rate of removal, coolant flow, available space, etc.

CHIP-TOTES employ patented MAY-FRAN hinged-steel belting, which features interlocking side-wing design to prevent chip fall-through and assure continuous trouble-free operation. Perforated links can be furnished to permit drainage of coolant from chips.





ring, the part is automatically unclamped. Machine can be adapted readily to other drilling and deburring operations by using different multiple heads. Govro-Nelson Co., Dept. ST, 1933 Antoinette, Detroit 8, Mich.

USE REPLY CARD—CIRCLE No. 7

### Antirust Paint

... available in colors

Rust-Cure antirust paint is available in three colors in addition to black, aluminum and clear. Colors are red, gray and green. Paint can be applied by brush or spray directly over rusted surfaces without wire brushing or sandblasting. Monroe Co. Inc., Dept. ST, 10703 Quebec Ave., Cleveland 6, O.

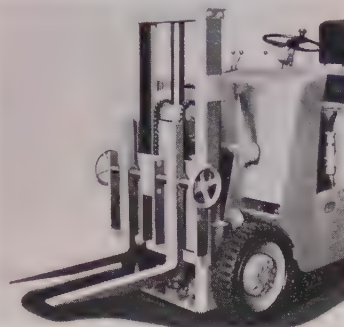
USE REPLY CARD—CIRCLE No. 8

### Screw Adjusting Forks

... maintains positive position

Screw adjustment permits frequent fork change but maintains positive positioning over the complete line of gas and electric trucks. Frame attaches to the standard

load elevator, supporting a pair of large diameter screws with machine-cut Acme threads. Forks can be moved laterally as the screws



are turned. This permits independent action of either fork.

Hand wheels (illustrated) or a detachable crank handle operate the screw. In car loading and unloading, the attachment facilitates work by acting as a manual side shifter. For this application, a single screw to position both forks simultaneously can be supplied. Elwell-Parker Electric Co., Dept. ST, 4205 St. Clair Ave., Cleveland, O.

USE REPLY CARD—CIRCLE No. 9

### Bottled Gas Fired Furnaces

... even heat, longer pot life

Bottled gas fired furnaces are designed for melting joint compound, asphalt, tar and similar materials. Furnaces are available in pot capacities of 4, 10, 15 and 25 gallons, have enclosed burners with a wide range of heat regulation. No flame impinges on pot, thus insuring even heating, longer pot life.

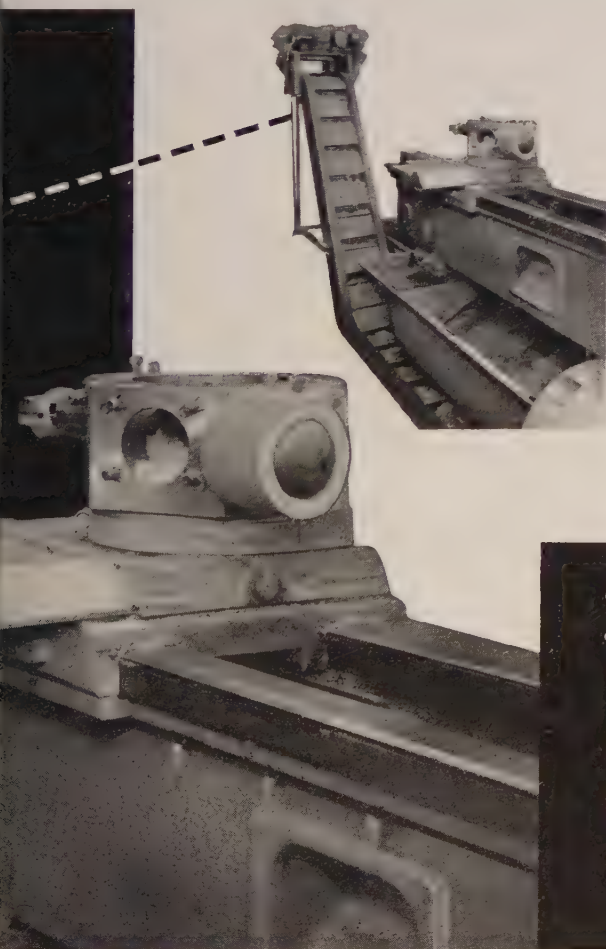
Furnaces are on wheels, can be moved from point to point on the job by one man unassisted. Furnace shell is made of 16-gage steel. Hauck Mfg. Co., Dept. ST, 124-136 Tenth St., Brooklyn 15, N. Y.

USE REPLY CARD—CIRCLE No. 10

### Humidity, Temperature Control

... functions by liquid contact

This apparatus dries or moistens the atmosphere by the liquid contact method. Air is treated to fix relative humidity and temperature independently. Filtered fresh air enters a spray chamber that provides contact between air and



The CHIP-TOTE has eliminated both machine down-time for scrap removal and manual scrap handling at the General Electric plant in Erie, Pa.

In this installation, brass chips from automatic lathe are funneled onto CHIP-TOTE's hinged-steel belt while lathe is operating. They are carried horizontally until clear of machine's mechanism and then up an incline for discharge into tote boxes. The CHIP-TOTE is synchronized with lathe's metal removing capacity to assure continuous jam-free chip removal. For maximum safety of operation, the chip conveyor is equipped with an adjustable clutch that disengages if pre-set load limit is exceeded.

903-MF

Write today for the new  
CHIP-TOTE catalog.



# MAY-FRAN

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1725 CLARKSTONE ROAD • CLEVELAND 12, OHIO





**\*MINUTE . . . OR . . .**

The armadillo has his complete body and head encased in an armor of small bony plates. When attacked some species can curl up into a ball thus presenting an armored front on all sides. Here nature has designed a strong protective covering.

The protective covering on tanks is armor plate which Standard Steel Spring Company is supplying in huge tonnage to all major tank producers. We work with our customers to properly design the parts, to tool for their most economical production, to expedite delivery and to carefully inspect at every phase of manufacture.

Our facilities include everything needed to produce flat, formed, fully machined—even welded subassembled parts in gauges from 1/4" to 4" inclusive. When you think of armor plate think first of Standard Steel Spring Company—America's largest producer.



**\*THE ARMADILLO**

This small burrowing mammal can be found anywhere from Texas to Argentina. It is protected from its natural enemies by a series of close fitting hinged bony plates.

**Standard Steel Spring Company**

ARMOR PLATE DIVISION • PENOBSCOT BLDG. • DETROIT, MICHIGAN

**ARMOR PLATE**



# **MASSIVE**

**BOTH CARRY ARMOR SPECIFICALLY  
DESIGNED FOR MAXIMUM PROTECTION!**



***— for Ordnance***



**No Structural Weakness**

with

**CAMCAR**  
COLD-FLOW



**Machined**

**Cold-Flow**



See the difference!

These two parts, one made by high production Camcar Cold-flow and the other by machining, were microphotographed to give visual proof of the strength and accuracy inherent in Camcar Cold-flow.

Notice the smooth structural lines of the Cold-flow part following the entire contour, including the threads. The metal flows where strength is required; machining cuts away the natural grain flow.

Order Camcar Cold-flow small metal parts for maximum tensile strength and close tolerances. You'll be convinced of the tremendous quality and production advantages on your first Camcar Cold-flow order. Send us parts or prints today.

Telephone 5-9451 • Teletype RK-8653

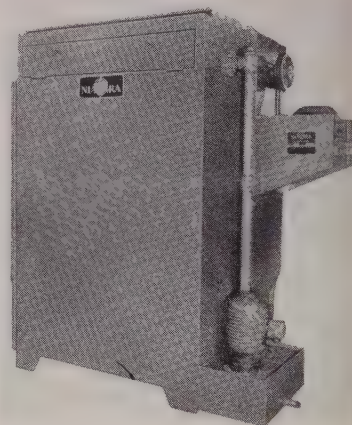
**CAMCAR** SCREW & MFG. CORP.  
603 EIGHTEENTH AVENUE, ROCKFORD, ILLINOIS

"PRODUCTION DESIGNED FOR YOUR ASSEMBLY LINE"

## NEW PRODUCTS and equipment

spray liquid. Spray adds moisture or removes it by absorption or condensation.

Condition of the spray liquid determines moisture content of the air leaving the chamber. Final temperature is fixed as a separate function, thus providing accurate



control of room conditions by means of thermostats and without use of moisture-sensitive instruments. Niagara Blower Co., Dept. ST, 405 Lexington Ave., New York 17, N. Y.

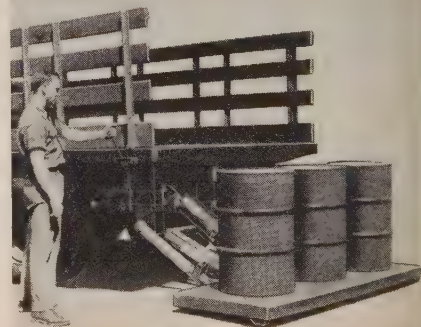
USE REPLY CARD—CIRCLE No. 11

## Hydraulic End Loader

... load capacity: 2000 pounds

Hydraulic end-loader is available in four models with loading space of 28 x 84 to 34 x 90 inches. Models are built to fit all trucks 1½ tons and heavier and have load capacity of 2000 pounds.

The manufacturer reports substantial reduction in delivery time

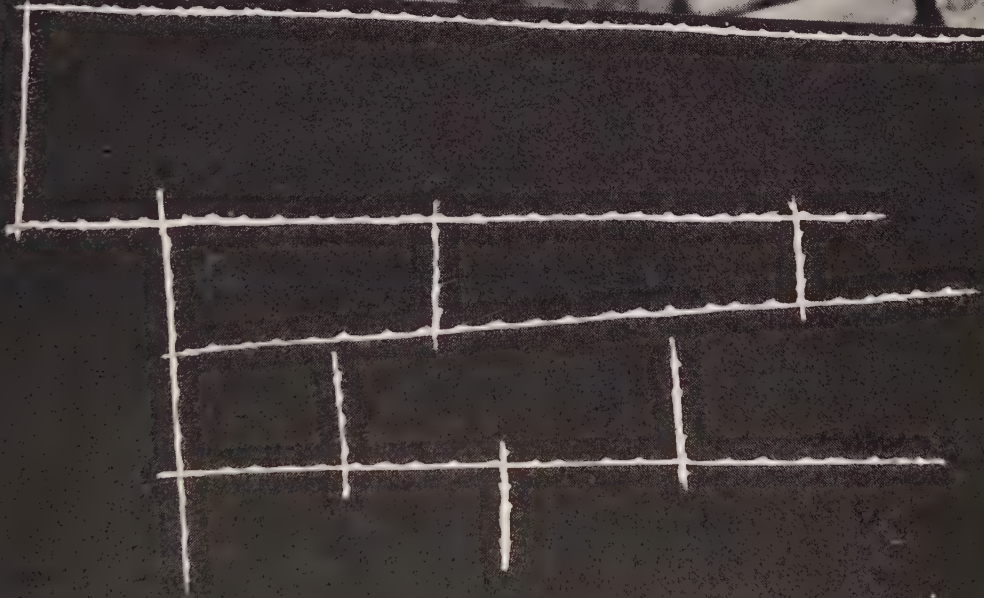


on heavy or bulky materials, and in some cases elimination of the need for loading docks. Attendant advantages are reduction of damage to goods and a lessening



*Season's  
Greetings*

*from*  
**SURE SPEC**



SURE

SPEC

*"for service dependable as the sun"*

**SOLAR STEEL CORPORATION**

General Offices: UNION COMMERCE BUILDING, CLEVELAND, OHIO

*See your local classified telephone directory for our nearest office address*

SALES OFFICES: Chicago • Cincinnati • Cleveland • Detroit • Grand Rapids • Kalamazoo • Milwaukee • Nashville  
New Haven • Philadelphia • River Rouge, Mich. • Rochester, N.Y. • Toledo • Union, N.J. • Washington, D.C. • Worcester, Mass.



# Making a one-ton load ... a one-man job on Westinghouse Switchgear

**WINSMITH**  
SPEED REDUCERS®

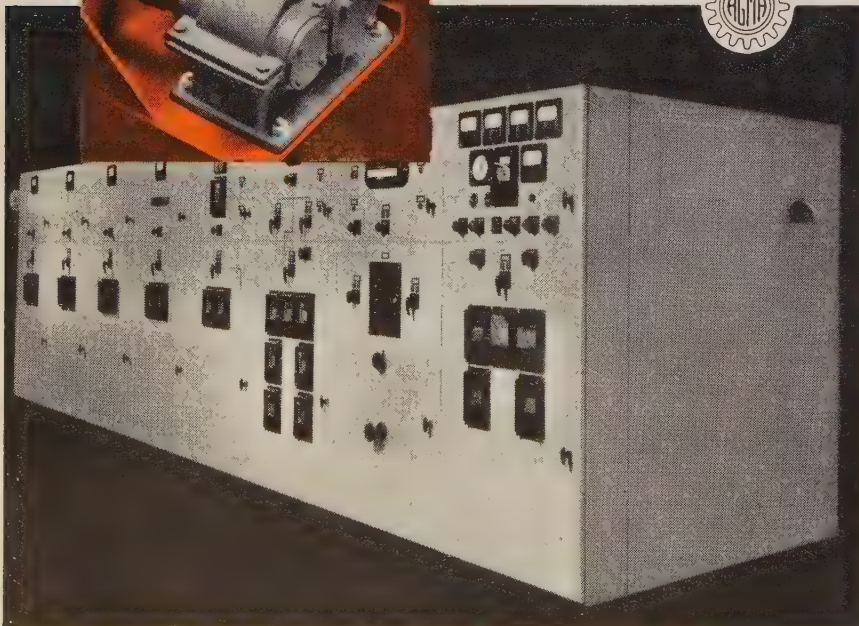
Even though it weighs a ton, when the oil circuit breaker on Westinghouse "Unitized" Heavy Duty Switchgear is removed periodically for inspection, it's only a one-man job. A power-elevating mechanism lowers the breaker onto a hand truck and lifts it back to operating position in about 3 minutes.

Heart of the elevating device is a motor-driven Winsmith Helical Gear Speed Reducer, with an input of  $\frac{3}{4}$  hp at 1725 rpm and a reduction ratio of 9.5 to 1, which operates 4 shaft-connected screw-lifts via a drive chain. Like all components of 100% standardized Westinghouse Switchgear, the Winsmith reducer is itself a product of complete standardization.

Whether your power transmission requirements are intermittent like this switchgear, or continuous . . . heavy duty or light . . . Winsmith is the *only* name in speed reducers you need remember. Standardized worm, helical and patented differential gear units are available to serve your specific needs throughout the 1/100 to 85 hp range, in ratios from 1.1:1 to 50,000:1. Request Catalog 148 for details.

## WINSMITH, INC.

14 Eaton Street  
SPRINGVILLE (Erie County), N. Y.



## NEW PRODUCTS and equipment

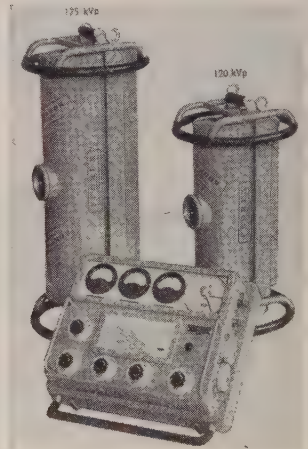
of driver fatigue. Power for the Load-elevator is supplied directly from the truck engine to a transmission-mounted power takeoff. Action is controlled by a single spring-loaded lever. Galion All-steel Body Co., Dept. ST, Galion, O.

USE REPLY CARD—CIRCLE No. 12

## Portable Radiographic Unit

... combines parts in one tank

Portable x-ray unit for industrial radiography is designed with x-ray tube and other high-tension parts combined in a single all-welded steel tank. High-tension cables, cooling connections, sep-



arate transformers and cooling pumps are eliminated. Result is a small, light unit that can be carried by one man into formerly inaccessible working spaces.

Compact simplicity also results in reduced maintenance and repair costs. Model is called Andrex and is available in 120 and 175 kilovolt peak capacities. Holger Andreasen Inc., Dept. ST, 703 Market St., San Francisco, Calif.

USE REPLY CARD—CIRCLE No. 13

## Electric Pallet Truck Line

... has rider, walker types

Pallet lift trucks battery-powered with capacity rating up to 6000 pounds, can be supplied with forks to handle any pallet size, single or double faced. Two models are available: Rider and conventional walker type. Rider truck takes power from a single-tray battery arrangement. Conventional-



**MAXIMUM  
DIE LIFE...**

**MAXIMUM  
EDGE WEAR...**

**CROMOVAN**

**MINIMUM  
DIMENSIONAL  
CHANGE...**

**HIGH  
COMPRESSION  
STRENGTH...**

**FLEXIBILITY  
IN HEAT  
TREATMENT...**

**GOOD  
MACHINEABILITY**

*high production champion*

R-271

CROMOVAN is a *high production* steel for long run requirements on blanking and forming dies where low cost production is vital. Tough, hard, highly alloyed Cromovan produces *two to three* times the number of pieces in Laminating,

Blanking, Forming, Trimming, and Coining dies. Yet Cromovan costs only slightly more than lower quality grades of steel. Safe, easy to use Cromovan assures consistently uniform results.

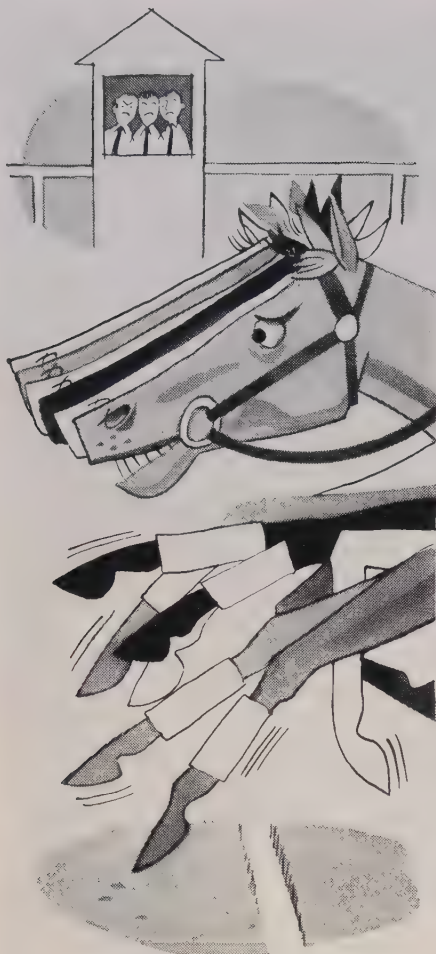


***Firth Sterling* INC.**

OFFICES\* AND WAREHOUSES: HARTFORD NEW YORK\* DETROIT CLEVELAND  
DAYTON\* PITTSBURGH\* CHICAGO BIRMINGHAM\* LOS ANGELES PHILADELPHIA\*

GENERAL OFFICES: 3113 FORBES ST., PITTSBURGH 30, PA.





## need a better finish?

Torrington Swaging Machines — delivering 4000 hammer blows a minute — work out surface imperfections quickly... produce a finish far superior to that obtained by other reduction methods. Swaging improves the quality of the material, too, and utilizes every ounce of stock.



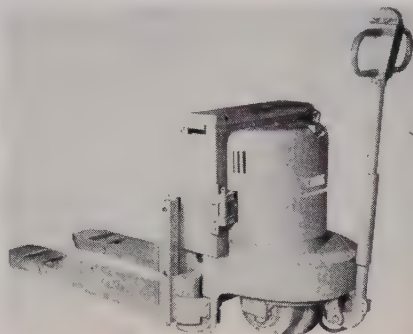
**THE TORRINGTON COMPANY**  
Swager Department  
556 Field Street • Torrington, Conn.  
Makers of  
**TORRINGTON NEEDLE BEARINGS**

"The Torrington Swaging Machine" describes all the advantages of swaging and gives full details on all Torrington machines. A copy is yours for the asking.

## NEW PRODUCTS and equipment

al model has a double-tray battery layout.

Trucks are additions to the Powrworker line. They have double hoisting cylinders for lifting loaded pallets and 5-hp motor-in-wheel



drive. These models comprise the shortest pallet truck design capable of carrying a double-tray battery, assuring utility in congested areas. Clark Equipment Co., Dept. ST, Buchanan, Mich.

USE REPLY CARD—CIRCLE No. 14

## Two, Three-Cell Batteries ... in plastic containers

Type CME Exide-Manchex batteries are in transparent plastic containers. They are available in both two and three cell units for use in stationary small power applications. Two-cell units are available in end-to-end and side-to-side assemblies; three-cell units in side-to-side assembly only. Electric Storage Battery Co., Dept. ST, Box 8109, Philadelphia 1, Pa.

USE REPLY CARD—CIRCLE No. 15

## Gear Rolling Fixture

... checks size, eccentricity

Model 602 bench-type rolling fixture checks size, eccentricity and roll smoothness of spur and helical external gears. It can be used in conjunction with the Michigan model MTR-50 automatic recorder to place all readings on permanent charts.

Gear to be checked is loaded on a vertical arbor that is moved into mesh with the master gear by an eccentric lever control. By turning the gear manually an 0.0005-inch indicator shows size, eccentricity and smoothness variations. Center distance is adjust-

"Joe, how can we save money on these small parts?"

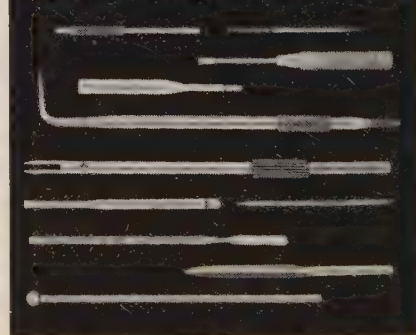


"Have Torrington make them, Tom! They have the know-how and the equipment to produce precision metal parts at a fraction of what we'd pay anywhere else."

When it comes to holding the line on costs—and holding strict tolerances at the same time—it takes experience and facilities. For over 86 years, Torrington has been making precision metal parts. Production facilities include batteries of automatic and semi-automatic machines—many of them Torrington-designed—and one of the finest heat-treating departments in the world. In addition, we have at our disposal the combined experience and facilities of all 11 plants of The Torrington Company.

If you need precision metal parts, ask us for a quotation. Just send us a sample or blueprint and tell us how many you need.

## Typical Torrington-Made Parts



**THE TORRINGTON COMPANY**  
Specialty Department  
556 Field Street • Torrington, Conn.  
Makers of  
**TORRINGTON NEEDLE BEARINGS**



## NEW PRODUCTS and equipment

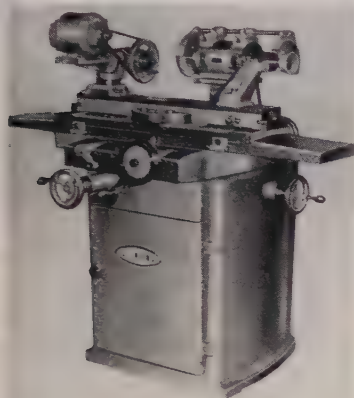
Table from 2 to 10 inches. Master gear arbor is 1 inch OD. Michigan Tool Co., Dept. ST, 7171 E. McNichols Rd., Detroit 12, Mich.

USE REPLY CARD—CIRCLE No. 16

### Tool and Cutter Grinder

... table swing: 10 3/4 inches

Universal tool and cutter grinder, Sterling model G, has vibration dampening cast base and direct drive wheel head using Excello spindles. Wheel head rotates a full 360 degrees, work table swivels



180 degrees. Swing over the table is 10 3/4 inches; maximum distance between centers, 27 inches.

Controls are located to make it easy to operate the model from front, left or right-hand sides. The grinder is available in both plain and universal types. McDonough Mfg. Co., Dept. ST, Eau Claire, Wis.

USE REPLY CARD—CIRCLE No. 17

### Micrometer

... protected by chrome finish

Lustro chrome finish protects this micrometer from rust and discoloration. Unit has tungsten carbide tipped anvils. All graduations are sharp and clear against the dull chrome background. George Scherr Co. Inc., Dept. ST, 200 Lafayette St., New York 12, N. Y.

USE REPLY CARD—CIRCLE No. 18

### Precision Thread Machine

... handles 20 pitch and finer

This small precision thread grinder is designed specifically to handle threads 20 pitch and finer. Finest pitch recommended is 124 on a U. S. form, although finer

# Can You Check YES to these five questions?

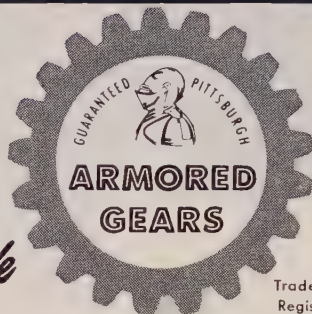
- ☐ Do the gears you use have surface-hardened teeth?
- ☐ Are the cores tough, ductile, and shock-resistant?
- ☐ Do they always fit perfectly and require no run-in?
- ☐ Are they guaranteed to give maximum service life?
- ☐ Are you completely satisfied with them?

## If not, you should use —

### PITTSBURGH

# purple

—Your Guarantee  
of Longer Life



Trademark  
Registered  
U. S. Patent Office

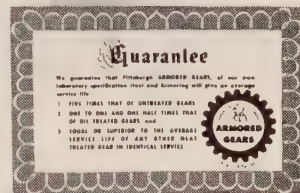
**ARMORED GEARS** are made only by PITTSBURGH GEAR from an exclusive formula perfected by PITTSBURGH engineers. It covers metal, machining, and a method of heat-treating that hardens the wearing surfaces but leaves the core tough, ductile, and shock-resistant.

All PITTSBURGH gears are made to extremely close tolerances to fit perfectly right from the start. They are guaranteed to give you five times the life of untreated gears, one to one and one-half the life of oil-treated gears, and equal or longer life than any other gear in identical service.

You can readily identify **Armored Gears** by their distinctive corrosion preventive coating—"Pittsburgh Purple."

You'll save money if you use PITTSBURGH **Armored Gears**. Send your specifications to us today. We'll quote promptly on one or any quantity of gears you need.

SPUR  
MITRE  
HELICAL  
HERRINGBONE  
WORM GEARS  
REDUCERS  
CRANE WHEELS



# PITTSBURGH GEAR

COMPANY

27th & Smallman Streets  
Pittsburgh 22, Pa.  
Phone: ATLantic 1-9950

subsidiary of BRAD FOOTE GEAR WORKS, INC. • CICERO 50, ILLINOIS



## NEW PRODUCTS and equipment

pitches can be ground in the Whitworth form. The machine takes work up to 1/2-inch diameter and 4 inches between centers. It employs a multirib wheel.

The lead screw is driven through change gears. Machine can be



equipped with dressing equipment that makes it adaptable for grinding some small, intricate forms. Sheffield Corp., Dept. ST, Dayton 1, O.

USE REPLY CARD—CIRCLE No. 19

### Low Differential Flow Meter

... measures air, gas flow

Diaflow meter is a low differential flow meter for measuring air flow, gas flow or recording the ratio of air flow to gas flow. It uses dry diaphragm type measuring element and will accommodate static pressures up to 10 pounds and differential pressures up to 20 inches water. Hays Corp., Dept. ST, Michigan City, Ind.

USE REPLY CARD—CIRCLE No. 20

### Electronic Trouble Spotter

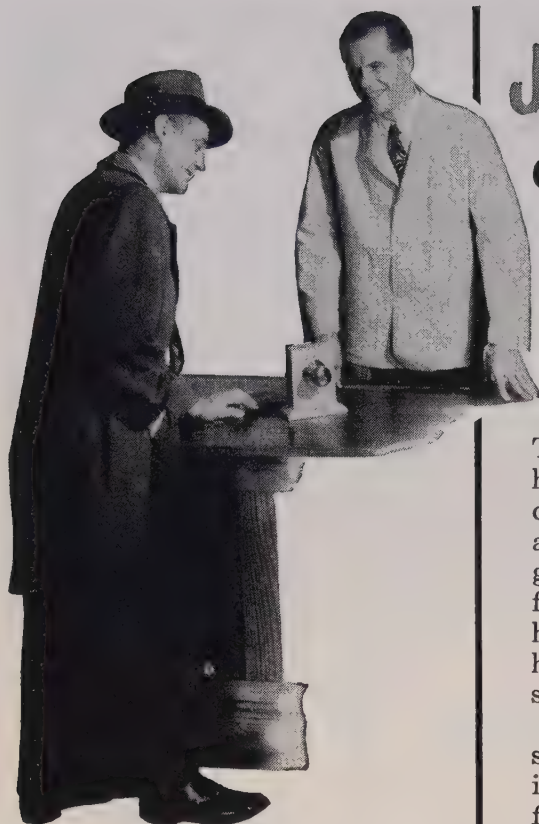
... tracks down friction noises

This portable electronic instrument locates sources of trouble in equipment by tracking down friction noises in such parts as bearings.

## USE A REPLY CARD

Just circle the corresponding number of any item in this section for more information.

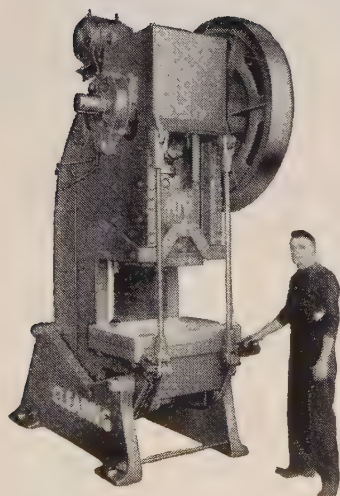
## Jim Carns didn't learn it from his Dad



The Carns hardware store has been on the same corner for eighty years, and Jim is the third generation proprietor. His father died in 1927. Things have changed in the hardware business since then.

Jim's father avoided stamped articles because in his day they were often flimsy and inaccurate—"ten cent store stuff." Today, pressed metal parts can be made strong, rigid, and to close tolerances. They're smooth, light in weight, low in cost—no wonder the public prefers them.

Clearing presses have contributed greatly to this revolution in the manufacture of metal parts. If you are making metal objects by some slower, more costly process, it will pay you to investigate modern press methods. Ask a Clearing engineer to show you possible adaptations to manufacture your product at minimum cost—on a Clearing press.



### CLEARING MACHINE CORPORATION

6499 WEST 65th STREET • CHICAGO 38, ILL.  
HAMILTON DIVISION, HAMILTON, OHIO



## CLEARING PRESSES

THE WAY TO EFFICIENT MASS PRODUCTION



## NEW PRODUCTS and equipment

ings, pistons, gears or cams. The instrument spots the exact source of noise with a metal probe which serves as a microphone. Sound impulses are transmitted through an amplifier to headphones.

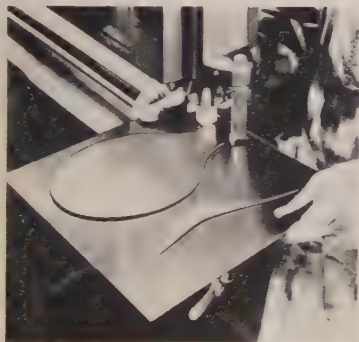
The result is diagnosis of trouble to determine quickly what repairs are needed without tearing down the entire piece of equipment. Anco Instrument Division, American Name Plate & Mfg. Co., Dept. ST, 4254 W. Arthington St., Chicago 24, Ill.

USE REPLY CARD—CIRCLE No. 21

### Steel Contour Shear

... cuts, beads and forms sheet

Tru-Edge model contour shear, designed for inside cutting, beading and forming sheet steel, employs a shearing principle that eliminates resistance to feeding and cutting the work. Feeding of



material can be started while ram is operating. Inside cutting requires no starting holes, thus eliminating preliminary operations.

Adjustable bottom shearing dies set quickly for various thicknesses of material. Shear cuts from 10 to 36 fpm, depending on gauge and material. Capacity reaches 10-gage mild steel and 11-gage stainless. Forty-eight-inch throat depth can be increased by arranging centers outside the throat. Wales-Strippit Corp., Dept. ST, 345 Payne Ave., N. Tonawanda, N. Y.

USE REPLY CARD—CIRCLE No. 22



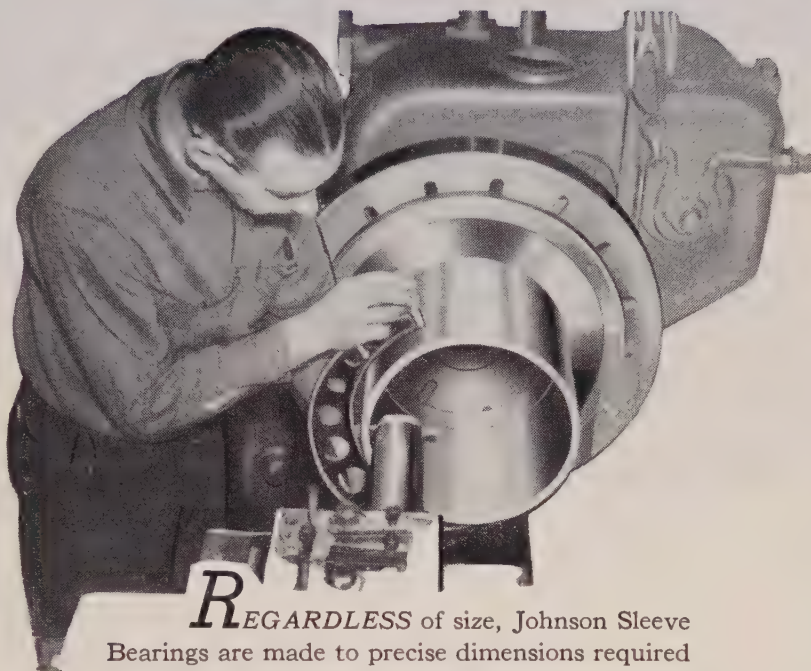
### USE A REPLY CARD

Just circle the corresponding number of any item in this section for more information.

# JOHNSON

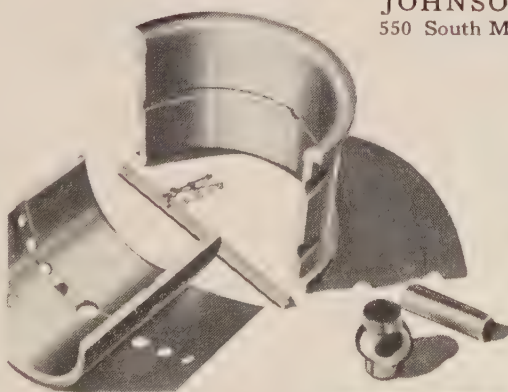
## King Size

### BEARINGS ARE PRECISION MADE



**R**EGARDLESS of size, Johnson Sleeve Bearings are made to precise dimensions required by modern high speed, heavy duty machinery. The Johnson plant is equipped with complete facilities for producing sleeve bearings up to the largest practical size. They are available in cast bronze, cast bronze babbitt-lined, cast steel babbitt-lined, and aluminum alloy . . . with various bronze and aluminum alloys suitable to your service requirements. Johnson engineers will gladly confer with you on "King Size" bearings and assist in designing them to suit the application. Write for an appointment.

**JOHNSON BRONZE CO.**  
550 South Mill St., New Castle, Pa.



No matter how large or small, there is a Johnson Sleeve Bearing to fit your requirements.

# JOHNSON **B** BEARINGS

*Sleeve-Type*





## COMPLETE INTEGRATION IS YOUR SAFEGUARD, TOO!

When you buy steel, you have the right to expect quality—as-specified. But consider . . . Only *complete integration* of every process—from ore mine to finished product—can assure high grade steel.

Alan Wood processes and plants form a *completely integrated* chain of production. Ore from Alan Wood Steel Company mines is tested in Alan Wood laboratories, smelted in Alan Wood blast furnaces, rolled in Alan Wood rolling mills. And Alan Wood quality control checks on every process—every step of the way!

### PRODUCTS OF ALAN WOOD STEEL COMPANY

#### SPECIALTY PRODUCTS



##### STAINLESS CLAD STEEL PERMACLAD stainless

Clad Steel combines the surface characteristics of solid stainless with the easy forming qualities of mild carbon steel—provides corrosion resistance at lower cost.

##### ABRASIVE ROLLED STEEL FLOOR PLATE



##### A.W. ALGRIP Abrasive Rolled Steel Floor Plate

is made by rolling tough abrasive grain as an integral part of the upper portion of steel plate. Result: Positive protection against slipping, even on steep inclines.



##### ROLLED STEEL FLOOR PLATE A.W. SUPER-DIAMOND

Rolled Steel Floor Plate, made with an allover, engineered pattern of raised, skid-resistant diamonds, is easy to clean, easy to match, and grips without a slip.

#### IRON PRODUCTS

“Swede” Pig Iron  
Foundry, Malleable, Bessemer  
and Basic

#### STEEL PRODUCTS

Plates (Sheared)  
Tank, Ship, Boiler, Flange and  
Structural Qualities

Furnished in carbon, copper,  
or alloy analyses  
A.W. Dynalloy  
(High Strength Plates)

#### HOT ROLLED SHEETS

Special qualities in carbon, copper, or  
alloy analyses  
A.W. Dynalloy  
(High Strength Sheets)

#### HOT ROLLED STRIP

Coiled and cut lengths  
Carbon, copper, or alloy analyses

#### A.W. ROLLED STEEL FLOOR PLATES

A.W. Algrip Abrasive  
A.W. Super-Diamond Pattern

#### STAINLESS-CLAD STEEL

Permaclad Sheets and Plates  
Standard and special qualities  
available in desired finishes

#### A.W. CUT NAILS

Reading Brand  
Black, Quenched and Tempered

#### MINE PRODUCTS

Iron Ore Concentrates, Sintered  
Concentrates, Crushed Stone, Grit,  
Sand and Engine Sand

#### COKE

Foundry, Industrial and Domestic

#### COAL CHEMICALS

Coke Oven Gas • Crude Coal Tar  
Ammonium Sulphate • Industrial  
Benzol, Toluol, Xylol • Motor  
Benzol • Crude Solvent Naphtha  
Crude Naphthalene • Crude Tar  
Bases • Sodium Phenolate • Crude  
Light Oil Still Residue

ONE CONTROL FROM MINE TO USER



# ALAN WOOD STEEL COMPANY

CONSHOHOCKEN, PA.

Over 125 Years of Iron  
and Steel Making Experience

IVY ROCK, PA. • SWEDELAND, PA. • DOVER, N.J. • OXFORD, N.J.





## *The Market Outlook*

EXCEPT for yearend lull accompanying the holidays and inventory-taking at many manufacturing plants, there is nothing on the horizon to indicate any substantial easing in demand pressure for the major steel products until well into second quarter, 1953. Some steelmakers think it will be beyond midyear before loosening of supply is experienced. These, however, are the exceptions, the majority withholding their views beyond second quarter pending developments after Jan. 20 when the new Republican administration takes over the reins of government.

**UNCERTAINTY**—Generally, active consumption of steel through 1953 is foreseen. Steelmaking capacity will attain an imposing figure, somewhere around 120 million tons, during the year, assuring new record output. Still, the outlook with respect to adequacy of supply to meet all consumer requirements promptly is clouded in the uncertainties attending the Korean war, future conduct of the defense program, and government policy with respect to distribution controls.

**IFFY PROBLEM**—Strong hope prevails that controls will be removed to large extent after the Eisenhower administration takes over. Yet, such action can be reasonably expected only if world political conditions improve markedly, if enlargement of the Korean war is averted, and if further stretchout of the defense program can be safely effected. Continuation of controls until Jan. 20 is a virtual certainty. Last week, Defense Mobilizer Fowler rejected proposals to discontinue existing price, wage and materials controls before the new administration assumes authority. He specifically rejected the steel industry's decontrol plan calling for elimination of the Controlled Materials Plan, except for military and atomic energy requirements, by Apr. 1.

**CONSUMPTION**—Currently, steel is being consumed in almost as great volume as it is being produced. Consumer stocks are rising ever so slowly and, manufacturing needs seem to be gaining rather than diminishing. Defense needs have not

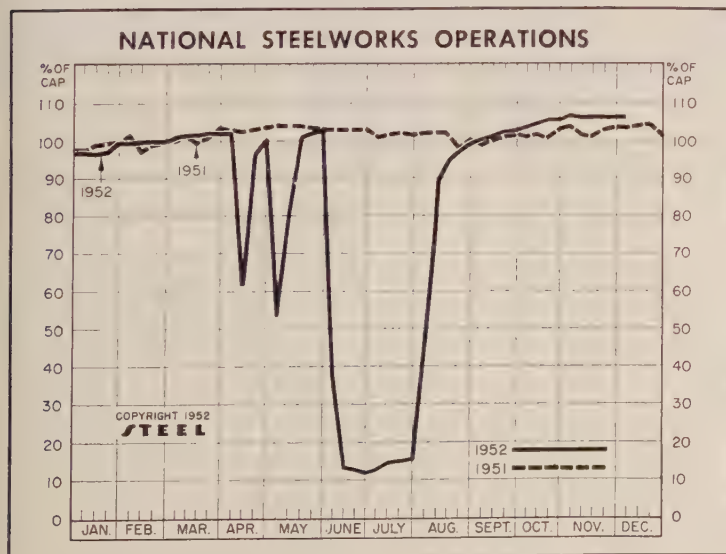
yet attained peak. And virtually every civilian durable goods manufacturing line, with the possible exception of farm equipment, is pushing the mills aggressively for every pound of steel it can get now and in the near future.

**BALANCE**—Only a couple weeks back the mills were predicting some degree of demand-supply balance during second quarter. Now, however, many of them are inclined to think balance will be postponed until well along in the last half of the year. They point to the heavy tonnage carryover into first quarter which will take up two-thirds of the period's production. In turn, carryover from first to second quarter promises to be large, with substantial overflow from second to third quarter likely, barring order cancellations.

**PRODUCTS PINCHED**—Order books in all the major products are loaded for first quarter and there will be little, if any, open rolling time in the period. Scheduling for second quarter is starting. Many mills are booking for the period on a highly selective basis. As things now stand no noteworthy decline in sheet demand is likely soon, with most users badly in need of tonnage. Tubular goods give promise of continuing in tight supply into last half of the year. Producers of hot-rolled carbon bars will have virtually nothing to offer nondefense consumers in the way of new tonnage before March. Structural inquiry is rising and some fabricators can't place first quarter orders with the mills. Virtually all producers of sheared plates are booked full.

**PRICES**—Revisions in wire product and oven coke prices feature the steel markets at the moment. The wire changes reflect revisions permitted by OPS in approving use of the columnar system in effecting recently announced dollars-and-cents increases.

**PRODUCTION**—The steel mills have been producing a weekly volume of about 2.2 million tons of ingots since the end of September. Estimated national ingot rate held unchanged last week at 106 per cent, equal to about 2,201,600 tons.



## DISTRICT INGOT RATES

Percentage of Capacity Engaged at  
Leading Production Points

	Week Ended Dec. 6	Change	Same Week 1951	1950
Pittsburgh .....	105	+ 1.5*	100	98
Chicago .....	109	— 1.5*	107.5	100
Mid-Atlantic .....	101	0	101.5	100
Youngstown .....	106	0	106	104
Wheeling .....	106.5	0	99.5	94
Cleveland .....	112	— 0.5	106	102
Buffalo .....	106.5	0	104	104
Birmingham .....	106.5	0	104	100
New England .....	92	— 1	92	88
Cincinnati .....	93	+ 3	102	102
St. Louis .....	99	+ 15	93.5	90.5
Detroit .....	106	— 1*	106	106
Western .....	107	+ 1	105	102
Estimated national rate .....	106	0	103.5	101

---

Based on weekly steelmaking capacity of 2,077,040 tons in 1952; 1,999,034 tons for 1951; 1,928,721 tons for second half, 1950; 1,906,265 tons for first half, 1950.

\* Change from revised rate for preceding week.



## Composite Market Averages

FINISHED STEEL PRICE INDEX:	Dec. 2	Nov. 25	Month	November
Bureau of Labor Statistics	1952	1952	Ago	Average
(1947-1949=100)	130.5	130.5	130.5	130.5

AVERAGE PRICES (BUREAU OF LABOR STATISTICS)  
Week Ended Dec. 2, 1952

Units are 100 lb except where otherwise noted below in parentheses.  
For complete description of products see insert following p. 28, STEEL,  
Sept. 8, 1952.

Rails .....	\$3.775	Sheets, C.R. carbon .....	\$5.275
Track spikes .....	6.650	Sheets, galv. ....	6.915
Track bolts .....	9.958	Strip, C.R. carbon .....	5.100
Tie plates .....	4.775	Strip, C.R. stainless (lb) .....	0.325
Joint bars .....	4.925	Pipe, black, butt weld (100 ft) .....	7.090
Plates, carbon .....	4.150	Pipe, galv., butt weld (100 ft) .....	8.887
Structural shapes .....	4.200	Boiler tubes (100 ft) .....	31.663
Bars, tool steel (lb) .....	1.576	Tin plate (100 lb base box) .....	8.950
Bars, 3120 alloy .....	6.575	Terne plate (100 lb base box) .....	7.750
Bars, stainless (lb) .....	0.149	Wire, carbon, merchant .....	6.075
Bars, carbon .....	4.100	Wire, fence, galv. ....	6.458
Bars, reinforcing .....	4.050	Nails (100 lb kegs) .....	7.390
Bars, C.F. carbon .....	5.925	Wire, barbed (80 rod spool) .....	5.920
Sheets, H.R. carbon .....	4.125	Woven wire fence (20 rod roll) .....	13.720

FINISHED PRICE INDEX, Weighted:	Dec. 4	Week	Month	Year	5 Yrs.
Calculated by STEEL*	1952	Ago	Ago	Ago	Ago
Index (1935-39 av.=100) ..	181.31	181.31	181.31	171.92	129.28
Index in cents per lb .....	4.912	4.912	4.912	4.657	3.502

ARITHMETICAL PRICE COMPOSITES:  
Calculated by STEEL\*

Finished Steel NT .....	\$110.98	\$110.98	\$110.98	\$106.32	\$76.09
No. 2 Fdry, Pig Iron, GT ..	55.04	55.04	55.04	52.24	36.89
Basic Pig Iron, GT .....	54.66	54.66	54.66	52.16	36.42
Malleable Pig Iron, GT ..	55.77	55.77	55.77	53.27	37.54
Steelmaking Scrap, GT ..	43.00	43.00	43.00	43.00	40.42

\*For explanation of weighted index see STEEL, Sept. 19, 1949, p. 54;  
of arithmetical price composites, STEEL, Sept. 1, 1952, p. 130.

## Comparison of Prices

Comparative prices by districts, in cents per pound except as other-  
wise noted. Delivered prices based on nearest production point.

FINISHED MATERIALS	Dec. 4	Week	Month	Year	5 Yrs.
	1952	Ago	Ago	Ago	Ago
Bars, H.R., Pittsburgh .....	3.95	3.95	3.95	3.70	2.90
Bars, H.R., Chicago .....	3.95	3.95	3.95	3.70	2.90
Bars, H.R., del. Philadelphia ..	4.502	4.502	4.502	4.223	3.318
Bars, C.F., Pittsburgh .....	4.925	4.925	4.925	4.55	3.55
Shapes, Std., Pittsburgh .....	3.85	3.85	3.85	3.65	2.80
Shapes, Std., Chicago .....	3.85	3.85	3.85	3.65	2.80
Shapes, del., Philadelphia .....	4.13	4.13	4.13	3.918	2.954
Plates, Pittsburgh .....	3.90	3.90	3.90	3.70	2.95
Plates, Chicago .....	3.90	3.90	3.90	3.70	2.95
Plates, Coatesville, Pa. ....	4.35	4.35	4.35	4.15	3.15
Plates, Sparrows Point, Md. ....	3.90	3.90	3.90	3.70	2.95
Plates, Claymont, Del. ....	4.35	4.35	4.35	4.15	3.15
Sheets, H.R., Pittsburgh .....	3.775	3.775	3.775	3.60-75	2.80
Sheets, H.R., Chicago .....	3.775	3.775	3.775	3.60	2.80
Sheets, C.R., Pittsburgh .....	4.575	4.575	4.575	4.35	3.55
Sheets, C.R., Chicago .....	4.575	4.575	4.575	4.35	3.55
Sheets, C.R., Detroit .....	4.775	4.775	4.775	4.55	3.70
Sheets, Galv., Pittsburgh .....	5.075	5.075	5.075	4.80	3.90
Strip, H.R., Pittsburgh .....	3.75-4.225	3.75-4.225	3.75-4.225	3.75-4.00	2.80
Strip, H.R., Chicago .....	3.725	3.725	3.725	3.50	2.80
Strip, C.R., Pittsburgh .....	5.10-5.80	5.10-5.80	5.10-5.80	4.65-5.35	3.55
Strip, C.R., Chicago .....	5.35	5.35	5.35	4.90	3.65
Strip, C.R., Detroit .....	5.30-6.05	5.30-6.05	5.30-6.05	4.85-5.60	3.70
Wire, Basic, Pittsburgh .....	5.10-5.225	5.10-5.225	5.10-5.225	4.85-5.10	3.675
Nails, Wire, Pittsburgh .....	6.20-6.35	6.20-6.35	6.20-6.35	5.90-6.20	4.625
Tin plate, box, Pittsburgh ..	\$8.95	\$8.95	\$8.95	\$8.70	\$5.75

## SEMIFINISHED

Billets, forging, Pitts. (NT) ..	\$70.50	\$70.50	\$70.50	\$66.00	\$56.50
Wire rods, $\frac{3}{8}$ -"", Pitts. ....	4.425	4.425	4.425	4.10-30	3.05

## PIG IRON, Gross Ton

Bessemer, Pitts. ....	\$55.50	\$55.50	\$55.50	\$53.00	\$37.00
Basic Valley .....	54.50	54.50	54.50	52.00	36.00
Basic, del. Phila. ....	59.25	59.25	59.25	56.61	38.84
No. 2 Fdry, Pitts. ....	55.00	55.00	55.00	52.50	36.50
No. 2 Fdry, Chicago .....	55.00	55.00	55.00	52.50	36.00
No. 2 Fdry, Valley .....	55.00	55.00	55.00	52.50	36.50
No. 2 Fdry, del. Phila. ....	59.75	59.75	59.75	57.11	39.34
No. 2 Fdry, Birm. ....	51.38	51.38	51.38	48.88	34.88
No. 2 Fdry (Birm.) del. Cin. ....	58.93	58.93	58.93	55.49	38.74
Malleable, Valley .....	55.00	55.00	55.00	52.50	36.50
Malleable, Chicago .....	55.00	55.00	55.00	52.50	36.50
Charcoal, Lyles, Tenn. ....	68.50	68.50	68.50	66.00	50.00
Ferromanganese, Etna, Pa. ....	228.00	228.00	228.00	188.00	151.00*

\*F.o.b. cars, Pittsburgh.

## SCRAP, Gross Ton (including broker's commission)

No. 1 Heavy Melt, Pitts. ....	\$44.00	\$44.00	\$44.00	\$44.00	\$40.00
No. 1 Heavy Melt, E. Pa. ....	41.50	41.50	41.50	42.50	42.50
No. 1 Heavy Melt, Chicago ..	42.50	42.50	42.50	42.50	38.75
No. 1 Heavy Melt, Valley .....	44.00	44.00	44.00	44.00	40.00
No. 1 Heavy Melt, Cleve. ....	43.00	43.00	43.00	43.00	39.75
No. 1 Heavy Melt, Buffalo ..	43.00	43.00	43.00	43.00	42.50
Rails, Re-rolling, Chicago ..	52.50	52.50	52.50	52.50	56.50
No. 1 Cast, Chicago .....	50.00	50.00	50.00	49.00†	49.00

† F.o.b. shipping point.

## COKE, Net Ton

Beehive, Furn, Connsvl. ....	\$14.75	\$14.75	\$14.75	\$14.75	\$12.00-12.50
Beehive, Fdry, Connsvl. ....	17.00	17.00	17.00	17.50	14.00-15.00
Oven Fdry, Chicago .....	24.50	24.50	23.00	23.00	17.60

## PIG IRON

F.o.b. furnace prices quoted under GCPR as reported to STEEL.  
Minimum delivered prices are approximate and do not include 3% federal  
tax. Key to producing companies published on second following page.

## PIG IRON, Gross Ton

	Basic	No. 2 Foundry	Malle- able	Besse- mer
Bethlehem, Pa. B2 .....	\$56.50	\$57.00	\$57.50	\$58.00
New York, del. ....	...	60.78	61.28	...
Newark, del. ....	59.52	60.02	60.52	61.02
Philadelphia, del. ....	59.25	59.75	60.25	60.75

## Birmingham District

Alabama City, Ala. R2 .....	50.88	51.38	...	...
Birmingham R2 .....	50.88	51.38	...	...
Birmingham S9 .....	...	51.38	...	...
Woodward, Ala. W15 .....	50.88	51.38	...	...
Cincinnati, del. ....	...	58.93	...	...

## Buffalo District

Buffalo R2 .....	54.50	55.00	55.50	...
Buffalo H1 .....	54.50	55.00	55.50	...
Tonawanda, N.Y. W12 .....	54.50	55.00	55.50	...
No. Tonawanda, N.Y. T9 .....	...	55.00	55.50	...
Boston, del. ....	65.15	65.65	66.15	...
Rochester, N.Y. del. ....	57.52	58.02	58.52	...
Syracuse, N.Y. del. ....	58.62	59.12	59.62	...

## Chicago District

Chicago I-3 .....	54.50	55.00	55.00	55.50
Gary, Ind. U5 .....	54.50	...	55.00	...
Indiana Harbor, Ind. I-2 .....	54.50	...	55.00	...
So. Chicago, Ill. W14 .....	54.50	55.00	55.00	...
So. Chicago, Ill. Y1 .....	54.50	55.00	55.00	...
So. Chicago, Ill. U5 .....	54.50	...	55.00	55.50
Milwaukee del. ....	56.67	57.17	57.17	57.67
Muskegon, Mich. del. ....	...	61.30	61.30	...

## Cleveland District

Cleveland A7 .....	54.50	55.00	55.00	55.50
Cleveland R2 .....	54.50	55.00	55.00	...
Akron, O., del. from Cleve. ....	57.11	57.61	57.61	58.11
Lorain, O. N3 .....	54.50	...	...	55.50

Duluth I-3 .....	...	...	55.00	...
Erie, Pa. I-3 .....	54.50	55.00	55.00	55.50
Everett, Mass. E1 .....	...	59.25	59.75	...
Fontana, Calif. K1 .....	60.50	61.00	...	...
Granite City, Ill. G4 .....	56.40	56.90	57.40	...
St. Louis, del. (inc. tax) .....	57.15	57.65	58.15	...
Ironton, Utah C11 .....	54.50	55.00	...	...
Geneva, Utah C11 .....	54.50	55.00	...	...
Lone Star, Tex. L6 .....	50.50	*51.00	51.00	...
Minnequa, Colo. C10 .....	56.50	57.50	57.50	...
Rockwood, Tenn. T3 .....	...	...	58.50	...

## Pittsburgh District

Neville Island, Pa. P6 .....	...	55.00	55.00	55.50
Pitts., N.S. & Sides, Ambridge ..	...	...	...	...
Aliquippa, del. ....	...	56.37	56.37	56.87
McKees Rocks, del. ....	...	56.04	56.04	56.54
Lawrenceville, Homestead, ....	...	...	...	...
Wilmerding, Monaca, del. ....	...	56.66	56.66	57.16
Verona, Trafford, del. ....	...	57.19	57.19	57.69
Brackenridge, del. ....	...	57.45	57.45	57.95
Bessemer, Pa. U5 .....	54.50	...	55.00	55.50
Clairton, Rankin, So. Duquesne, Pa. U5	54.50	...	...	...
McKeesport, Pa. N3 .....	54.50	...	...	55.50
Monessen, Pa. P7 .....	56.50	...	...	...
Sharpsville, Pa. S6 .....	...	...	55.00	55.50
Steelton, Pa. B2 .....	56.50	57.00	57.50	58.00
Swedeland, Pa. A3 .....	58.50	59.00	59.50	60.00
Toledo, O. I-3 .....	54.50	55.00	55.00	55.50
Cincinnati, del. ....	59.97	60.47	...	...
Troy, N.Y. R2 .....	56.50	57.00	57.50	58.00

## Youngstown District

Hubbard, O. Y1 .....	54.50	55.00	55.00	...
Youngstown Y1 .....	54.50	55.00	55.00	...
Youngstown U5 .....	54.50	...	...	55.50
Mansfield, O., del. ....	59.15	59.65	59.65	60.15

\* Low phos, southern grade.

## PIG IRON DIFFERENTIAL

Silicon: Add 50 cents per ton for each 0.25% Si or percentage thereof  
over base grade, 1.75-2.25%, except on low phos iron on which base  
is 1.75-2.00%

Phosphorus: Deduct 38 cents per ton for P content of 0.70% and over.  
Manganese: Add 50 cents per ton for each 0.50% manganese over 1%  
or portion thereof.

Nickel: Under 0.50% no extra; 0.50-0.74%, incl., add \$2 per ton and  
each additional 0.25%, add \$1 per ton.

## BLAST FURNACE SILVER PIG IRON, Gross Ton

(Base 6.0-6.50% silicon; add \$1.50 for each 0.5% Si)

Jackson, O. G2, J1 .....	\$65.50
Buffalo H1 .....	66.75

## ELECTRIC FURNACE SILVER PIG IRON, Gross Ton

(Base 14.01-14.50% silicon; add \$1 for each 0.5% Si to 18%; \$1 for  
each 0.5% Mn over 1%; \$2 per gross ton premium for 0.045% max P)  
Niagara Falls, N.Y. P15 ..... \$91.00 |

Keokuk, Iowa, Openheart & Fdry, frt. allowed K2 .....	92.50
Keokuk, OH & Fdry., 12½ lb piglets, 16% Si, frt. allowed K2 .....	95.50
Wenatchee, Wash., OH & Fdry., frt. allowed K2 .....	92.50

## CHARCOAL PIG IRON, Gross Ton

(Low phos semi-cold blast; differential charged for silicon over  
base grade; also for hard chilling iron Nos. 5 & 6)

Lyles, Tenn. T3 .....	\$68.50
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## LOW PHOSPHORUS PIG IRON, Gross Ton

Cleveland, intermediate, A7 .....	\$59.50
Steelton, Pa. B2 .....	62.50
Philadelphia, delivered .....	66.05
Troy, N.Y. R2 .....	62.50



## Semifinished and Finished Steel Products

Mill prices quoted under

GCPR as reported to STEEL,  
Code numbers following millDec. 4, 1952, cents per pound except as otherwise noted.  
Prices indicate producing company; key on next two pages.

Changes shown in italics

**INGOTS, Carbon, Forging (NT)**  
Fontana, Calif. K1 .....\$81.00  
Munhall, Pa. U5 .....54.00  
Seattle S24 .....75.00

**INGOTS, Alloy (NT)**  
Detroit R7 .....\$57.00  
Fontana, Calif. K1 .....83.00  
Houston S5 .....65.00  
Midland, Pa. C18 .....57.00  
Munhall, Pa. U5 .....57.00

**BILLETS, BLOOMS & SLABS**  
**Carbon, Rolling (NT)**  
Bessemer, Pa. U5 .....\$59.00  
Clairton, Pa. U5 .....59.00  
Ensley, Ala. T2 .....59.00  
Fairfield, Ala. T2 .....59.00  
Fontana, Calif. K1 .....78.00  
Gary, Ind. U5 .....59.00  
Johnstown, Pa. B2 .....59.00  
Lackawanna, N.Y. B2 .....59.00  
Munhall, Pa. U5 .....59.00  
So. Chicago, Ill. U5 .....59.00  
So. Duquesne, Pa. U5 .....59.00

**Carbon, Forging (NT)**  
Bessemer, Pa. U5 .....\$70.50  
Buffalo R2 .....70.50  
Canton, O. R2 .....70.50  
Clairton, Pa. U5 .....70.50  
Cleveland R2 .....70.50  
Conshohocken, Pa. A3 .....77.50  
Detroit R7 .....73.50  
Ensley, Ala. T2 .....70.50  
Fairfield, Ala. T2 .....70.50  
Fontana, Calif. K1 .....89.50  
Gary, Ind. U5 .....70.50  
Geneva, Utah C11 .....70.50  
Houston S5 .....78.50  
Johnstown, Pa. B2 .....70.50  
Lackawanna, N.Y. B2 .....70.50  
Los Angeles B3 .....89.50  
Munhall, Pa. U5 .....70.50  
Seattle B3 .....89.50  
So. Chicago R2, U5, W14 .....70.50  
So. Duquesne, Pa. U5 .....70.50  
So. San Francisco B3 .....89.50

**Alloy, Forging (NT)**  
Bethlehem, Pa. B2 .....\$76.00  
Buffalo R2 .....76.00  
Canton, O. R2 .....76.00  
Canton, O. T7 .....76.00  
Conshohocken, Pa. A3 .....83.00  
Detroit R7 .....79.00  
Fontana, Calif. K1 .....95.00  
Gary, Ind. U5 .....76.00  
Houston S5 .....84.00  
Ind. Harbor, Ind. Y1 .....76.00  
Johnstown, Pa. B2 .....76.00  
Lackawanna, N.Y. B2 .....76.00  
Los Angeles B3 .....96.00  
Massillon, O. R2 .....76.00  
Midland, Pa. C18 .....76.00  
Munhall, Pa. U5 .....76.00  
So. Chicago R2, U5, W14 .....76.00  
So. Duquesne, Pa. U5 .....76.00  
Struthers, O. Y1 .....76.00  
Warren, O. C17 .....76.00

**ROUNDS, SEAMLESS TUBE (NT)**  
Buffalo R2 .....\$87.50  
Canton, O. R2 .....87.50  
Cleveland R2 .....87.50  
Fontana, Calif. K1 .....108.50  
Gary, Ind. U5 .....87.50  
Massillon, O. R2 .....87.50  
So. Chicago, Ill. R2 .....87.50  
So. Duquesne, Pa. U5 .....87.50

**SHEET BARS (NT)**  
Fontana, Calif. K1 (43) .....\$89.00  
**SKELP**  
Alliquippa, Pa. J5 .....\$3.65  
Munhall, Pa. U5 .....3.55  
Warren, O. R2 .....3.55  
Youngstown R2, U5 .....3.55

**WIRE RODS**  
Alton, Ill. L1 .....4.70  
Alabama City, Ala. R2 .....4.325  
Buffalo W12 .....4.325  
Cleveland A7 .....4.325  
Donora, Pa. A7 .....4.325  
Fairfield, Ala. T2 .....4.325  
Fontana, Calif. K1 .....5.125  
Houston S5 .....4.725  
Johnstown, Pa. B2 .....4.325  
Joliet, Ill. A7 .....4.325  
Kansas City, Mo. S5 .....4.665  
Los Angeles B3 .....5.125  
Minneapolis, Colo. C10 .....4.575  
Monessen, Pa. P7 .....4.525  
Mo. Tonawanda, N.Y. B11 .....4.325  
Pittsburgh, Calif. C11 .....4.975  
Portsmouth, O. P12 .....4.525  
Roebbing, N.J. R5 .....4.425  
So. Chicago, Ill. R2 .....4.325  
Sparrows Point, Md. B2 .....4.425  
Sterling, Ill. (1) N15 .....4.325  
Struthers, O. Y1 .....4.325  
Torrance, Calif. C11 .....5.125  
Worcester, Mass. A7 .....4.625

**SHEET STEEL PILING**  
Ind. Harbor, Ind. I-2 .....4.675  
Lackawanna, N.Y. B2 .....4.675  
Munhall, Pa. U5 .....4.675  
So. Chicago, Ill. U5 .....4.675

## STRUCTURALS

**Carbon Steel Stand. Shapes**  
Alabama City, Ala. R2 .....3.85  
Alliquippa, Pa. J5 .....3.85  
Bessemer, Ala. T2 .....3.85  
Bethlehem, Pa. B2 .....3.90  
Clairton, Pa. U5 .....3.85  
Fairfield, Ala. T2 .....3.85  
Fontana, Calif. K1 .....4.45  
Gary, Ind. U5 .....3.85  
Geneva, Utah C11 .....3.85  
Houston S5 .....4.25  
Ind. Harbor, Ind. I-2 .....3.85  
Johnstown, Pa. B2 .....3.90  
Kansas City, Mo. S5 .....4.45  
Lackawanna, N.Y. B2 .....3.90  
Los Angeles B3 .....4.45  
Minneapolis, Colo. C10 .....4.30  
Munhall, Pa. U5 .....3.85  
Niles, Calif. (22) P1 .....4.56  
Phoenixville, Pa. P4 .....6.10  
Seattle B3 .....4.50  
So. Chicago, Ill. U5, W14 .....3.85  
So. San Francisco B3 .....4.40  
Torrance, Calif. C11 .....4.45  
Weirton, W. Va. W6 .....4.10

**Wide Flange**  
Bethlehem, Pa. B2 .....3.90  
Clairton, Pa. U5 .....3.85  
Fontana, Calif. K1 .....4.85  
Johnstown, Pa. B2 .....3.90  
Lackawanna, N.Y. B2 .....3.90  
Munhall, Pa. U5 .....3.85  
So. Chicago, Ill. U5 .....3.85

**Alloy Stand. Shapes**  
Clairton, Pa. U5 .....4.725  
Fontana, Calif. K1 .....5.925  
Gary, Ind. U5 .....4.725  
Munhall, Pa. U5 .....4.725  
So. Chicago, Ill. U5 .....4.725

**H.S., L.A. Stand. Shapes**  
Alliquippa, Pa. J5 .....5.80  
Bessemer, Ala. T2 .....5.80  
Bethlehem, Pa. B2 .....5.80  
Clairton, Pa. U5 .....5.80  
Fairfield, Ala. T2 .....5.80  
Fontana, Calif. K1 .....6.40  
Gary, Ind. U5 .....5.80  
Geneva, Utah C11 .....5.80  
Ind. Harbor, Ind. I-2 .....5.80  
Ind. Harbor, Ind. Y1 .....6.30  
Johnstown, Pa. B2 .....5.80  
Lackawanna, N.Y. B2 .....5.80  
Los Angeles B3 .....6.35  
Munhall, Pa. U5 .....5.80  
Seattle B3 .....6.40  
So. Chicago, Ill. U5 .....5.80  
So. San Francisco B3 .....6.30  
Struthers, O. Y1 .....6.30

**H.S., L.A. Wide Flange**  
Alliquippa, Pa. J5 .....5.50  
Bethlehem, Pa. B2 .....5.50  
Lackawanna, N.Y. B2 .....5.50  
Munhall, Pa. U5 .....5.75  
So. Chicago, Ill. U5 .....5.75

**BEARING PILES**  
Munhall, Pa. U5 .....3.85  
So. Chicago, Ill. U5 .....3.85

**PLATES, High-Strength Low-Alloy**  
Alliquippa, Pa. J5 .....5.95  
Bessemer, Ala. T2 .....5.95  
Clairton, Pa. U5 .....5.95  
Cleveland J5, R2 .....5.95  
Conshohocken, Pa. A3 .....6.20  
Ecorse, Mich. G5 .....6.90  
Fairfield, Ala. T2 .....5.95  
Fontana, Calif. (30) K1 .....6.55  
Gary, Ind. U5 .....5.95  
Geneva, Utah C11 .....5.95  
Ind. Harbor, Ind. I-2 .....5.95  
Ind. Harbor, Ind. Y1 .....6.15  
Johnstown, Pa. B2 .....5.95  
Munhall, Pa. U5 .....5.95  
Pittsburgh J5 .....5.95  
Seattle B3 .....6.85  
Sharon, Pa. S3 .....5.95  
So. Chicago, Ill. U5 .....5.95  
Sparrows Point, Md. B2 .....5.95  
Warren, O. R2 .....5.95  
Youngstown Y1 .....6.45  
Youngstown U5 .....5.95

**PLATES, Open-Hearth Alloy**  
Clymont, Del. C22 .....5.35  
Coatesville, Pa. L7 .....5.75  
Conshohocken, Pa. A3 .....5.55  
Fontana, Calif. K1 .....6.20  
Gary, Ind. U5 .....5.25  
Johnstown, Pa. B2 .....5.25  
Munhall, Pa. U5 .....5.25  
Sharon, Pa. S3 .....5.70  
So. Chicago, Ill. U5 .....5.25  
Sparrows Point, Md. B2 .....5.25

**FLOOR PLATES**  
Cleveland J5 .....4.95  
Conshohocken, Pa. A3 .....4.95  
Ind. Harbor, Ind. I-2 .....4.95  
Munhall, Pa. U5 .....4.95  
So. Chicago, Ill. U5 .....4.95

**PLATES, Ingot Iron**  
Ashland, c.l. (15) A10 .....4.15  
Cleveland, c.l. R2 .....4.50  
Warren, O. c.l. R2 .....4.50

## PLATES, Carbon Steel

Alabama City, Ala. R2 .....3.90  
Alliquippa, Pa. J5 .....3.90  
Ashland, Ky. (15) A10 .....3.90  
Bessemer, Ala. T2 .....3.90  
Clairton, Pa. U5 .....3.90  
Clymont, Del. C22 .....4.35  
Cleveland J5, R2 .....3.90  
Coatesville, Pa. L7 .....4.35  
Conshohocken, Pa. A3 .....4.35  
Ecorse, Mich. G5 .....4.15  
Fairfield, Ala. T2 .....3.90  
Fontana, Calif. (30) K1 .....4.50  
Gary, Ind. U5 .....3.90  
Granite City, Ill. G4 .....4.60  
Geneva, Utah C11 .....3.90  
Harrisburg, Pa. C5 .....6.50  
Houston S5 .....4.30  
Ind. Harbor, Ind. I-2, Y1 .....3.90  
Johnstown, Pa. B2 .....3.90  
Lackawanna, N.Y. B2 .....3.90  
Minneapolis, Colo. C10 .....4.70  
Munhall, Pa. U5 .....3.90  
Pittsburgh J5 .....3.90  
Seattle B3 .....4.80  
Sharon, Pa. S3 .....4.15  
So. Chicago, Ill. U5, W14 .....3.90  
Sparrows Point, Md. B2 .....3.90  
Steubenville, O. W10 .....3.90  
Warren, O. R2 .....3.90  
Weirton, W. Va. W6 .....4.20  
Youngstown R2, U5, Y1 .....3.90

**PLATES, Carbon A.R.**  
Fontana, Calif. K1 .....5.65  
Geneva, Utah C11 .....5.05

**PLATES, Wrought Iron**  
(Add 4.7% to base and extras)  
Economy, Pa. B14 .....5.60

## BARS, Hot-Rolled Carbon

Alabama City, Ala. R2 .....3.95  
Alliquippa, Pa. J5 .....3.95  
Alton, Ill. L1 .....4.50  
Atlanta, Ga. A11 .....4.50  
Bessemer, Ala. T2 .....3.95  
Buffalo R2 .....3.95  
Canton, O. R2 .....3.95  
Clairton, Pa. U5 .....3.95  
Cleveland R2 .....3.95  
Detroit R7 .....4.10  
Ecorse, Mich. G5 .....4.30  
Emeryville, Calif. J7 .....4.70  
Fairfield, Ala. T2 .....3.95  
Fontana, Calif. K1 .....4.65  
Gary, Ind. U5 .....3.95  
Houston S5 .....4.35  
Ind. Harbor, Ind. I-2, Y1 .....3.95  
Johnstown, Pa. B2 .....3.95  
Kansas City, Mo. S5 .....4.55  
Lackawanna, N.Y. B2 .....3.95  
Los Angeles B3 .....4.65  
Milton, Pa. B6 .....4.55  
Minneapolis, Colo. C10 .....4.40  
Niles, Calif. P1 .....4.65  
N. Tonawanda, N.Y. B11 .....3.95  
Pittsburgh, Calif. C11 .....4.65  
Pittsburgh J5 .....3.95  
Seattle B3, N14 .....4.70  
So. Chicago R2, U5, W14 .....3.95  
So. Duquesne, Pa. U5 .....3.95  
So. San Fran., Cal. B3 .....4.70  
Sterling, Ill. N15 .....4.55  
Struthers, O. Y1 .....3.95  
Torrance, Calif. C11 .....4.65  
Weirton, W. Va. W6 .....4.10  
Youngstown R2, U5 .....3.95

**BAR SIZE ANGLES; S. Shapes**  
Alliquippa, Pa. J5 .....3.95  
Atlanta A11 .....4.50  
Niles, Calif. P1 .....4.65  
San Francisco S7 .....5.00

## BAR SIZE ANGLES; H.R. CARBON

Bethlehem, Pa. B2 .....4.15

## BARS, Hot-Rolled Alloy

Bethlehem, Pa. B2 .....4.675  
Buffalo R2 .....4.675  
Canton, O. R2 .....4.675  
Canton, O. T7 .....4.72  
Clairton, Pa. U5 .....4.675  
Detroit R7 .....4.25  
Ecorse, Mich. G5 .....5.025  
Fontana, Calif. K1 .....5.725  
Gary, Ind. U5 .....4.675  
Houston S5 .....5.075  
Ind. Harbor, Ind. I-2, Y1 .....4.675  
Johnstown, Pa. B2 .....4.675  
Kansas City, Mo. S5 .....5.275  
Lackawanna, N.Y. B2 .....4.675  
Los Angeles B3 .....5.725  
Massillon, O. R2 .....4.675  
Midland, Pa. C18 .....4.30  
So. Chicago R2, U5, W14 .....4.675  
So. Duquesne, Pa. U5 .....4.675  
Struthers, O. Y1 .....4.675  
Warren, O. C17 .....4.675  
Youngstown U5 .....4.675

**BAR SHAPES, Hot-Rolled Alloy**  
Clairton, Pa. U5 .....4.925  
Gary, Ind. U5 .....4.925  
Youngstown U5 .....4.925

BARS & SMALL SHAPES, H. R.,  
High-Strength Low-Alloy

Alliquippa, Pa. J5 .....5.925  
Bessemer, Ala. T2 .....5.925  
Bethlehem, Pa. B2 .....5.925  
Clairton, Pa. U5 .....5.925  
Cleveland R2 .....5.925  
Ecorse, Mich. G5 .....6.675  
Fairfield, Ala. T2 .....5.925  
Fontana, Calif. K1 .....6.975  
Gary, Ind. U5 .....5.925  
Ind. Harbor, Ind. I-2 .....5.925  
Indiana Harbor, Ind. Y1 .....6.425  
Johnstown, Pa. B2 .....5.925  
Lackawanna, N.Y. B2 .....5.925  
Los Angeles B3 .....6.625  
Pittsburgh J5 .....5.925  
Seattle B3 .....6.675  
So. Duquesne, Pa. U5 .....5.925  
So. San Francisco B3 .....6.675  
Struthers, O. Y1 .....6.425  
Youngstown U5 .....5.925

## BARS, Cold-Finished Carbon

Ambridge, Pa. W18 .....4.925  
Beaver Falls, Pa. R2 .....4.925  
Beaver Falls, Pa. M12 .....4.925  
Buffalo B5 .....4.975  
Camden, N.J. P13 .....5.375  
Carnegie, Pa. C12 .....4.925  
Chicago B5 .....4.925  
Chicago W18 .....4.925  
Cleveland A7, C20 .....4.925  
Detroit P17, R7 .....5.075  
Donora, Pa. A7 .....4.925  
Elyria, O. W8 .....4.925  
Franklin Park, Ill. N5 .....4.925  
Gary, Ind. R2 .....4.925  
Green Bay, Wis. F7 .....4.925  
Hammond, Ind. L2, M13 .....4.925  
Hartford, Conn. R2 .....5.475  
Los Angeles R2 .....6.375  
Mansfield, Mass. B5 .....5.475  
Massillon, O. R2, R8 .....4.925  
Monaca, Pa. S17 .....4.925  
Newark, N.J. W18 .....5.375  
Plymouth, Mich. P5 .....5.175  
Pittsburgh J5 .....4.925  
Putnam, Conn. W18 .....5.475  
Readville, Mass. C14 .....5.475  
St. Louis, Mo. M5 .....5.30  
So. Chicago, Ill. W14 .....4.925  
Spring City, Pa. K3 .....5.375  
Struthers, O. Y1 .....4.925  
Waukegan, Ill. A7 .....4.925  
Youngstown Y1 .....4.925  
Youngstown F3 .....4.925

## BARS, Cold-Finished Alloy

Ambridge, Pa. W18 .....6.00  
Beaver Falls, Pa. M12 .....6.00  
Bethlehem, Pa. B2 .....6.00  
Buffalo B5 .....6.00  
Camden, N.J. P13 .....6.40  
Canton, O. R2 .....6.00  
Canton, O. T7 .....5.99  
Carnegie, Pa. C12 .....6.00  
Chicago B5 .....6.00  
Chicago W18 .....6.00  
Cleveland A7 .....6.05  
Cleveland C20 .....6.00  
Detroit P17, R7 .....6.15  
Donora, Pa. A7 .....6.05  
Elyria, O. W8 .....6.00  
Gary, Ind. R2 .....6.00  
Hammond, Ind. L2, M13 .....6.00  
Hartford, Conn. R2 .....6.45  
Lackawanna, N.Y. B2 .....6.00  
Mansfield, Mass. B5 .....6.45  
Massillon, O. R2, R8 .....6.00  
Midland, Pa. C18 .....5.40  
Monaca, Pa. S17 .....6.00  
Newark, N.J. W18 .....6.35  
Plymouth, Mich. P5 .....6.20  
So. Chicago, Ill. R2, W14 .....6.00  
Spring City, Pa. K3 .....6.20  
Struthers, O. Y1 .....6.00  
Warren, O. C17 .....6.00  
Waukegan, Ill. A7 .....6.05  
Worcester, Mass. A7 .....6.35  
Youngstown Y1 .....6.00  
Youngstown F3 .....6.00

## BARS, Reinforcing (Fabricators)

Alabama City, Ala. R2 .....3.95  
Atlanta A11 .....4.50  
Buffalo R2 .....3.95  
Cleveland R2 .....3.95  
Emeryville, Calif. J7 .....4.70  
Fairfield, Ala. T2 .....3.95  
Fontana, Calif. K1 .....4.65  
Gary, Ind. U5 .....3.95  
Houston S5 .....4.35  
Ind. Harbor, Ind. I-2, Y1 .....3.95  
Johnstown, Pa. B2 .....3.95  
Kansas City, Mo. S5 .....4.55  
Lackawanna, N.Y. B2 .....3.95  
Los Angeles B3 .....4.65  
Milton, Pa. B6 .....4.55  
Minneapolis, Colo. C10 .....4.75  
Niles, Calif. P1 .....4.65  
Pittsburgh, Calif. C11 .....4.65  
Pittsburgh J5 .....3.95  
Sand Springs, Okla. S5 .....4.85

Seattle B3, N14 .....4.70  
So. Chicago, Ill. R2 .....3.95  
So. Duquesne, Pa. U5 .....3.95  
So. San Francisco B3 .....4.70  
Sparrows Point, Md. B2 .....3.95  
Sterling, Ill. (1) N15 .....4.70  
Struthers, O. Y1 .....3.95  
Torrance, Calif. C11 .....4.65  
Youngstown R2, U5 .....3.95

## BARS, Reinforcing

(Fabricated; to consumers)  
Huntington, W. Va. W7 .....5.50  
Johnstown, 1/4-1" B2 .....4.75  
Los Angeles B3 .....5.45  
Marion, O. P11 .....5.25  
Seattle B3, N14 .....5.80  
So. San Francisco B3 .....5.45  
Sparrow Pt. 1/4-1" B2 .....4.75  
Williamsport, Pa. S19 .....5.35

## RAIL STEEL BARS

Chicago Hts. (3,4) C2 .....5.00  
Chicago Hts. (3,4) I-2 .....4.75  
Franklin, Pa. (3,4) F5 .....5.00  
Fort Worth, Tex. (26) T4 .....5.10  
Huntngt. W. Va. (3) W7 .....5.75  
Marion, O. (3) P11 .....4.75  
Moline, Ill. (3) R2 .....4.05  
Tonawanda (3,4) B12 .....5.80  
Williamsport (3) S19 .....5.25  
Williamsport (4) S19 .....5.35

## BARS, Wrought Iron

(Add 4.7% to base and extras)  
Economy, Pa. (S.R.) B14 .....9.60  
Economy, Pa. (D.R.) B14 .....11.90  
Economy (Staybolt) B14 .....12.20  
McK. Rks. (Staybolt) L5 .....14.50  
McK. Rks. (S.R.) L5 .....9.60  
McK. Rks. (D.R.) L5 .....13.00

## SHEETS, Hot-Rolled Steel

(18 gage and heavier)  
Alabama City, Ala. R2 .....3.775  
Ashland, Ky. (8) A10 .....3.775  
Butler, Pa. A10 .....3.775  
Cleveland J5, R2 .....3.775  
Conshohocken, Pa. A3 .....4.175  
Detroit M1 .....4.40  
Ecorse, Mich. G5 .....3.975  
Fairfield, Ala. T2 .....4.725  
Fontana, Calif. K1 .....4.725  
Gary, Ind. U5 .....3.775  
Geneva, Utah C11 .....3.875  
Granite City, Ill. G4 .....4.30  
Ind. Harbor, Ind. I-2, Y1 .....3.775  
Irvin, Pa. U5 .....3.775  
Lackawanna, N.Y. B2 .....3.775  
Munhall, Pa. U5 .....3.775  
Niles, O. N12 .....5.425  
Pittsburgh, Calif. C11 .....4.475  
Pittsburgh J5 .....3.775  
Sharon, Pa. S3 .....4.175  
So. Chicago, Ill. W14 .....3.775  
Sparrows Point, Md. B2 .....3.775  
Steubenville, O. W10 .....3.775  
Torrance, Calif. C11 .....4.475  
Warren, O. R2 .....3.775  
Weirton, W. Va. W6 .....3.775  
West Leechburg, Pa. A4 .....3.925  
Youngstown U5, Y1 .....3.775

## SHEETS, H.R. (19 gage)

Alabama City, Ala. R2 .....4.925  
Dover, O. R1 .....5.825  
Mansfield, O. E6 .....5.65  
Niles, O. N12 .....5.675  
Torrance, Calif. C11 .....5.575

## SHEETS, H.R. (14 gage heavier)

**High-Strength Low-Alloy**  
Cleveland J5, R2 .....5.675  
Conshohocken, Pa. A3 .....5.925  
Ecorse, Mich. G5 .....6.225  
Fairfield, Ala. T2 .....5.675  
Fontana, Calif. K1 .....6.625  
Gary, Ind. U5 .....5.675  
Ind. Harbor, Ind. I-2 .....5.675  
Ind. Harbor, Ind. Y1 .....6.175  
Irvin, Pa. U5 .....5.675  
Lackawanna (35) B2 .....5.675  
Munhall U5 .....5.675  
Pittsburgh J5 .....5.675  
Sharon, Pa. S3 .....5.675  
So. Chicago, Ill. U5 .....5.675  
Sparrows Point (36) B2 .....5.675  
Warren, O. R2 .....5.675  
Weirton, W. Va. W6 .....6.025  
Youngstown U5 .....5.675  
Youngstown Y1 .....6.175

## SHEETS, Cold-Rolled

**High-Strength Low-Alloy**  
Cleveland J5, R2 .....6.925  
Ecorse, Mich. G5 .....7.475  
Fontana, Calif. K1 .....7.875  
Gary, Ind. U5 .....6.925  
Indiana Harbor, Ind. Y1 .....7.425  
Indiana Harbor, Ind. I-2 .....6.925  
Irvin, Pa. U5 .....6.925  
Lackawanna (37) B2 .....6.925  
Pittsburgh J5 .....6.925  
Sparrows Point (38) B2 .....6.925  
Warren, O. R2 .....6.925  
Weirton, W. Va. W6 .....7.275  
Youngstown Y1 .....7.425



**SHEETS, Cold-Rolled Steel**  
(Commercial Quality)

Butler, Pa. A10	4.575
Cleveland J5, R2	4.575
Ecorse, Mich. G5	4.775
Fairfield, Ala. T2	4.575
Follansbee, W. Va. F4	5.575
Fontana, Calif. K1	5.525
Gary, Ind. U5	4.575
GraniteCity, Ill. G4	5.275
Ind. Harbor, Ind. I-2, Y1	4.575
Irvin, Pa. U5	4.575
Lackawanna, N.Y. B2	4.575
Middletown, O. A10	4.575
Pittsburg, Calif. C11	5.525
SparrowsPoint, Md. B2	4.575
Steuensville, O. W10	4.575
Warren, O. R2	4.575
Weirton, W. Va. W6	5.775
West Leechburg, Pa. A4	5.45
Youngstown Y1	4.575

**SHEETS, Galv'd No. 10 Steel**

Alabama City, Ala. R2	5.075
Ashland, Ky. (8) A10	5.075
Canton, O. R2	5.075
Delphos, O. N16	5.675
Dover, O. R1	5.775
Fairfield, Ala. T2	5.075
Gary, Ind. U5	5.075
GraniteCity, Ill. G4	5.50
Ind. Harbor, Ind. I-2	5.075
Irvin, Pa. U5	5.075
Kokomo, Ind. (13) C16	5.475
Martins Ferry, O. W10	5.075
Niles, O. N12	6.275
Pittsburg, Calif. C11	5.825
SparrowsPoint, Md. B2	5.075
Steuensville, O. W10	5.075
Torrance, Calif. C11	5.825
Weirton, W. Va. W6	5.075

**SHEETS, Galvanized No. 10, High-Strength Low-Alloy**

Irvin, Pa. U5	7.625
SparrowsPoint (39) B2	7.775

**SHEETS, Galvannealed Steel**

Canton, O. R2	5.625
Irvin, Pa. U5	5.625
Kokomo, Ind. (13) C16	6.025
Niles, O. N12	6.825

**SHEETS, ZINCGRIP Steel No. 10**

Butler, Pa. A10	5.325
Middletown, O. A10	5.325

**SHEETS, Electro Galvanized**

Cleveland R2 (28)	5.925
Niles, O. R2 (28)	5.925
Weirton, W. Va. W6	5.775

**SHEETS, Well Casing**

Fontana, Calif. K1 (43)	5.10
Torrance, Calif. C11	5.275

**BLUED STOCK, 29 ga.**

Yorkville, O. W10	7.00
Follansbee, W. Va. F4	7.10
Follansbee (23) F4	6.425

**SHEETS, Enameling Iron**

Ashland, Ky. (8) A10	4.925
Cleveland R2	4.925
Gary, Ind. U5	4.925
GraniteCity, Ill. G4	5.625
Ind. Harbor, Ind. I-2	4.925
Irvin, Pa. U5	4.925
Middletown, O. A10	4.925
Youngstown Y1	4.925

**TIN PLATE, Electrolytic (Base Plate)**

	0.25 lb	0.50 lb	0.75 lb
Alquippa, Pa. J5	\$7.40	\$7.65	\$8.05
Fairfield, Ala. T2	7.50	7.75	8.15
Gary, Ind. U5	7.40	7.65	8.05
GraniteCity, Ill. G4	7.60	7.85	8.25
Indiana Harbor, Ind. I-2, Y1	7.40	7.65	8.05
Irvin, Pa. U5	7.40	7.65	8.05
Niles, O. R2	7.40	7.65	8.05
Pittsburg, Calif. C11	8.15	8.40	8.80
SparrowsPoint, Md. B2	7.50	7.75	8.15
Weirton, W. Va. W6	7.40	7.65	8.05
Yorkville, O. W10	7.40	7.65	8.05

**SHEETS, SILICON, H.R. or C.R. (22 Ga.)**

	Field	Arma-ture	Elec-tric	Motor	Dyna-mo
BeechBottom W10 (cut lengths)	...	7.85	9.10	9.90	...
Brackenridge, Pa. A4	...	8.35	9.60	10.40	...
GraniteCity, Ill. G4 (cut lengths)	...	8.55	9.80	...	...
Indiana Harbor, Ind. I-2	7.55	7.85	(34)	(41)	...
Mansfield, O. B6 (cut lengths)	7.20	7.35	7.85	9.10	9.90
Niles, O. N12 (cut lengths)	7.05	7.35	7.85	...	...
Vandergriff, Pa. U5	...	7.85	8.35	9.60	10.40
Warren, O. R2	7.55	7.85	8.35	9.60	10.40
Zanesville, O. A10	...	7.85	8.35	9.60	10.40

**SHEETS, SILICON (22 Ga. Base)****COILS (Cut Length 1/2c lower)**

	72	65	58	52
Transformer Grade	...	...	...	...
BeechBottom W10 (cut lengths)	10.45	11.00	11.70	12.50
Brackenridge, Pa. A4	10.95	...	...	...
Vandergriff, Pa. U5	10.95	11.50	12.20	13.00
Warren, O. R2	10.95	...	...	...
Zanesville, O. A10	10.95	11.50	12.20	13.00

**H.R. or C.R. COILS AND****CUT LENGTHS, SILICON (22 Ga.)**

	T-100	T-90	T-80	T-73
Butler, Pa. A10 (C.R.)	...	...	15.35	15.85
Vandergriff, Pa. U5	13.50	14.35	15.35	15.85

**BLACK PLATE****(Base Box)**

Alquippa, Pa. J5	\$6.25
Fairfield, Ala. T2	6.60
Gary, Ind. U5	6.50
GraniteCity, Ill. G4	6.70
Ind. Harbor, Ind. I-2, Y1	6.50
Irvin, Pa. U5	6.50
Niles, O. R2	6.50
Pittsburg, Calif. C11	7.25
SparrowsPoint, Md. B2	6.60
Warren, O. R2	6.50
Weirton, W. Va. W6	6.50
Yorkville, O. W10	6.50

**HOLLOWARE ENAMELING**

	Black Plate (29 gage)
Follansbee, W. Va. F4	6.10
Gary, Ind. U5	6.10
GraniteCity, Ill. G4	6.30
Ind. Harbor, Ind. Y1	6.10
Irvin, Pa. U5	6.10
Yorkville, O. W10	6.35

**SHEETS, Culvert**

	No. 16	Cu	Alloy	Cu
Ashland, Ky. A10	5.875	...	...	...
Canton, O. R2	5.925	6.375	...	...
Fairfield, Ala. T2	5.875	6.125	...	...
Gary, Ind. U5	5.875	6.125	...	...
Ind. Harbor I-2	5.875	6.125	...	...
Irvin, Pa. U5	5.875	6.125	...	...
Kokomo, Ind. C16	6.525	...	...	...
Martins Ferry, O. W10	5.875	...	...	...
Pittsburg, Cal. C11	6.625	...	...	...
SparrowsPt. B2	5.875	...	...	...
Torrance, Cal. C11	6.625	...	...	...

**SHEETS, Culvert, No. 16**

	Pure Iron
Ashland, Ky. A10	6.125
Fairfield, Ala. T2	6.125
Martins Ferry, O. W10	6.125

**SHEETS, Hot-Rolled Ingot Iron**

	18 Gage and Heavier
Ashland, Ky. (8) A10	4.025
Cleveland R2	4.375
Ind. Harbor, Ind. I-2	4.025
Warren, O. R2	4.375

**SHEETS, Cold-Rolled Ingot Iron**

Butler, Pa. A10	5.075
Cleveland R2	5.175
Middletown, O. A10	5.075
Warren, O. R2	5.175

**SHEETS, Galvanized Ingot Iron**

	No. 10 flat
Ashland, Ky. (8) A10	5.325
Canton, O. R2	5.825

**SHEETS, ZINCGRIP Ingot Iron**

Butler, Pa. A10	5.575
Middletown, O. A10	5.575

**SHEETS, ALUMINIZED**

Butler, Pa. A10	8.425
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**TINPLATE, American 1.25 1.50**

	Coke (Base Box)	lb	lb
Alquippa, Pa. J5	\$8.70	\$8.95	...
Fairfield, Ala. T2	8.80	9.05	...
Gary, Ind. U5	8.70	8.95	...
Ind. Har. I-2, Y1	8.70	8.95	...
Irvin, Pa. U5	8.70	8.95	...
Pitts., Cal. C11	9.45	9.70	...
Sp.Pt., Md. B2	8.80	9.05	...
Warren, O. R2	8.70	...	...
Weirton, W. Va. W6	8.70	8.95	...
Yorkville, O. W10	8.70	8.95	...

**MANUFACTURING TERNES****(Special Coated)**

Fairfield, Ala. T2	\$7.85
Gary, Ind. U5	7.75
Irvin, Pa. U5	7.75
Yorkville, O. W10	7.75

**SHEETS, LT. Coated Ternes, 6 lb**

Yorkville, O. W10	\$8.65
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**SHEETS, Mfg. Ternes, 8 lb****(Commercial Quality)**

Gary, Ind. U5	\$9.75
Yorkville, O. W10	9.75

**SHEET, Long Terne Steel****(Commercial Quality)**

BeechBottom, W. Va. W10	5.475
Gary, Ind. U5	5.475
Mansfield, O. E6	6.05
Middletown, O. A10	5.475
Niles, O. N12	6.275
Weirton, W. Va. W6	5.475

**SHEETS, Long Terne, Ingot Iron**

Middletown, O. A10	5.875
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**ROOFING SHORT TERNES****(8 lb. Coated)**

Gary, Ind. U5	9.75
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**STRIP, Hot-Rolled****High-Strength Low-Alloy**

Bessemer, Ala. T2	5.65
Conshohocken, Pa. A3	5.90
Ecorse, Mich. G5	6.30
Fairfield, Ala. T2	5.65
Fontana, Calif. K1	6.55
Gary, Ind. U5	5.65
Ind. Harb., Ind. I-2	5.65
Ind. Harbor, Ind. Y1	6.15
Lackawanna, N.Y. B2	5.70
Los Angeles (25) B3	6.40
Seattle (25) B3	6.65
Sharon, Pa. S3	5.65
So. San Francisco (25) B3	6.40
SparrowsPoint, Md. B2	5.70
Warren, O. R2	5.65
Weirton, W. Va. W6	6.10
Youngstown Y1	6.15
Youngstown U5	5.65

**STRIP, Cold-Rolled****High-Strength Low-Alloy**

Cleveland J5	7.45
Cleveland A7	7.30
Dover, O. G6	8.00
Ecorse, Mich. G5	8.15
Lackawanna, N.Y. B2	7.90
Sharon, Pa. S3	7.30
SparrowsPoint, Md. B2	7.90
Warren, O. R2	7.30
Weirton, W. Va. W6	7.95
Youngstown Y1	7.80

**STRIP, Hot-Rolled Carbon**

Ala. City, Ala. (27) R2	3.725
Alton, Ill. L1	4.20
Ashland, Ky. (8) A10	3.725
Atlanta A11	4.275
Bessemer, Ala. T2	3.725
Bridgept, Conn. (10) S15	4.225
Buffalo (27) R2	3.725
Butler, Pa. A10	3.725
Carnegie, Pa. S18	4.225
Conshohocken, Pa. A3	4.125
Detroit M1	4.40
Ecorse, Mich. G5	4.025
Fairfield, Ala. T2	3.725
Fontana, Calif. K1	4.975
Gary, Ind. U5	3.725
Houston, Tex. S5	4.125
Ind. Harbor, Ind. I-2, Y1	3.725
Johnstown, Pa. (25) B2	3.725
Kansas City, Mo. (9) S5	4.325
Lackawanna, N.Y. (32) B3	4.775
Los Angeles (25) B3	4.475
Milton, Pa. B6	4.35
Minnequa, Colo. C10	4.775

\* Plus \$1.575 per 100 lb.

**Key to Producers**

A1 Acme Steel Co.	C10 Colorado Fuel & Iron
A3 Alan Wood Steel Co.	C11 Columbia-Geneva Steel
A4 Allegheny Ludlum Steel	C12 Columbia Steel & Shaft
A7 American Steel & Wire	C13 Columbia Tool Steel Co.
A8 Anchor Drawn Steel Co.	C14 Compressed Steel Shaft
A9 Angell Nail & Chaplet	C16 Continental Steel Corp.
A10 Armco Steel Corp.	C17 Copperweld Steel Co.
A11 Atlantic Steel Co.	C18 Crucible Steel Co.
A13 American Cladmetals Co.	C19 Cumberland Steel Co.
B1 Babcock & Wilcox Co.	C20 Cuyahoga Steel & Wire
B2 Bethlehem Steel Co.	C22 Claymont Steel Corp.
B3 Beth. Pac. Coast Steel	D2 Detroit Steel Corp.
B4 Blair Strip Steel Co.	D3 Detroit Tube & Steel
B5 Bliss & Laughlin Inc.	D4 Disston & Sons, Henry
B6 Boiard Steel Corp.	D6 Driver Harris Co.
B8 Braeburn Alloy Steel	D7 Dickson Weatherproof
B11 Buffalo Bolt Co.	Nail Co.
B12 Buffalo Steel Div., H. K. Porter Co.	E1 Eastern Gas & Fuel Assoc.
B14 A. M. Byers Co.	E2 Eastern Stainless Steel
C1 Calstrip Steel Corp.	E4 Electro Metallurgical Co.
C2 Calumet Steel Div.	E5 Elliott Bros. Steel Co.
C3 Carpenter Steel Co.	E6 Empire Steel Corp.
C4 Central Iron & Steel Div.	F2 Firth Sterling Inc.
C5 Barium Steel Corp.	F3 Fitzsimons Steel Co.
C7 Cleve. Cold Rolling Mills	F4 Follansbee Steel Corp.
C8 Cold Metal Products Co.	F5 Franklin Steel Div.
C9 Colonial Steel Co.	Borg-Warner Corp.
	F6 Fretz-Moon Tube Co.
	F7 Ft. Howard Steel & Wire

New Britain (10) S15	4.225
N. Tonawanda, N.Y. B11	3.725
Pittsburg, Calif. C11	4.475
Riverdale, Ill. A7	3.725
San Francisco S7	5.00
Seattle (25) B3	4.725
Seattle N14	4.75
Sharon, Pa. S3	4.225
So. Chicago, Ill. W14	3.725
So. San Francisco (25) B3	4.475
SparrowsPoint, Md. B2	3.725
Sterling, Ill. N15	4.725
Torrance, Calif. C11	4.475
Warren, O. R2	3.725
Weirton, W. Va. W6	3.825
West Leechburg, Pa. A4	3.975
Youngstown U5, Y1	3.725

**STRIP, Hot-Rolled Alloy**

Bridgept, Conn. (10) S15	6.05
Carnegie, Pa. S18	6.45
Fontana, Calif. K1	7.30
Gary, Ind. U5	6.10
Houston, Tex. S5	6.50
Kansas City, Mo. S5	6.70
Midland, Pa. C18	5.85
New Britn., Conn. (10) S15	6.05
Sharon, Pa. S3	6.45
Youngstown U5	6.10

**STRIP, Cold-Rolled Carbon**

Anderson, Ind. (40) G6	5.50
Bridgept, Conn. (10) S15	5.80
Butler, Pa. A10	5.10
Cleveland A7, J5	5.10
Dearborn, Mich. D3	6.05
Detroit D2	5.60
Detroit M1	5.45
Dover, O. (40) G6	5.50
Ecorse, Mich. G5	5.50
Follansbee, W. Va. F4	5.10
Fontana, Calif. K1	6.75
Franklin Park, Ill. (40) T6	5.35
Ind. Harbor, Ind. I-2	5.35
Lackawanna, N.Y. B2	5.10
Los Angeles C1	6.85
Mattapan, Mass. T6	5.95
Middletown, O. A10	5.10
New Britain (10) S15	5.80



**WIRE, Merchant Quality**  
(6 to 8 gage) An'd'd. Galv.

Alabama City R2	6.075	6.325
Alliquippa J5	6.075	6.45*
Atlanta A11	6.325	6.675
Bartonville (19) K4	6.075	6.40
Buffalo W12	5.225	5.525
Cleveland A7	6.075	6.225
Crawfordsville M8	6.175	6.65
Donora, Pa. A7	6.075	6.225
Duluth, Minn. A7	6.075	6.225
Fairfield T2	6.075	6.225
Houston, Tex. S5	6.475	6.625
Johnstown B2	6.075	6.451
Joliet, Ill. A7	6.075	6.225
Kansas City, Mo. S5	6.675	6.825
Kokomo C16	6.175	6.425
Los Angeles B3	7.025	7.175
Minnequa C10	6.325	6.70*
Monessen P7	6.075	6.45
Palmer W12	5.525	5.825
Pitts., Calif. C11	7.025	7.175
Prismth. (18) P12	6.475	6.625
Rankin A7	6.075	6.225
So. Chicago R2	6.075	6.325
So. S. Fran. C10	7.025	7.40*
Sparrows Pt. B2	6.175	6.551
Sterling, Ill. (1) N15	6.075	6.40
Struthers, O. Y1	6.075	6.475
Torrance, Cal. C11	7.025	7.175
Worcester A7	6.375	6.525

\* Based on 14-cent zinc; † 14.50-cent zinc.

**ROPE WIRE**

Alton, Ill. L1	9.15
Bartonville, Ill. K4	8.95
Buffalo W12 (43)	8.55
Fostoria, O. S1 (43)	8.55
Johnstown, Pa. B2 (43)	8.55
Monessen, Pa. P16 (43)	8.55
Monessen, Pa. P7 (43)	8.80
Muncie, Ind. 1-7 (43)	8.75
Palmer, Mass. W12 (43)	8.55
Portsmouth, O. P12 (43)	8.55
Roebing, N.J. R5 (43)	8.85
Sparrows Pt. B2 (43)	8.65
Struthers, O. Y1 (43)	8.55
Worcester J4, T6 (43)	8.85

A. Plow and Mild Plow; Add .25c for improved plow.

**WIRE, Manufacturers Bright, Low Carbon**

Alabama City, Ala. R2	5.225
Alliquippa, Pa. J5 (42)	4.85
Atlanta A11	5.475
Alton, Ill. L1	5.45
Bartonville, Ill. K4	5.325
Buffalo W12	5.225
Chicago W13	5.475
Cleveland A7, C20	5.225
Crawfordsville, Ind. M8	5.325
Donora, Pa. A7	5.225
Duluth, Minn. A7	5.225
Fairfield, Ala. T2	5.225
Postoria, O. (24) S1	5.725
Houston S5	5.625
Johnstown, Pa. B2	5.225
Joliet, Ill. A7	5.225
Kansas City, Mo. S5	5.325
Kokomo, Ind. C16	5.325
Los Angeles B3	5.475
Minnequa, Colo. C10	5.175
Monessen, Pa. P7	5.475
Newark 6-8 ga. 1-1	5.85
No. Tonawanda B11	5.225
Palmer, Mass. W12	5.225
Pittsburgh, Calif. C11	5.175
Portsmouth, O. P12	5.625
Rankin, Pa. A7	5.225
So. Chicago, Ill. R2	5.225
So. San Francisco C10	5.175

**Key to Producers**

11 McLouth Steel Corp.	P12
14 Mahoning Valley Steel	P13
15 Medart Co.	P14
16 Mercer Tube & Mfg. Co.	P15
18 Mid-States Steel & Wire	P16
19 Midvale Co.	P17
112 Moltrup Steel Products	R1
113 Monarch Steel Co.	R2
114 McInnes Steel Co.	R3
72 National Supply Co.	R5
73 National Tube Div.	R6
76 Nelsen Steel & Wire Co.	R7
76 New Eng.-High Carb. Wire	R8
78 Newman-Crosby Steel	R9
712 Niles Rolling Mill Div.	S3
714 Nthwst. Steel Roll. Mills	S5
715 Northwestern S.&W. Co.	S7
716 New Delphos Mfg. Co.	S8
73 Oliver Iron & Steel Corp.	S9
74 Oregon Steel Mills	S13
71 Pacific States Steel Corp.	S14
72 Pacific Tube Co.	S15
74 Phoenix Iron & Steel Co.	S16
75 Pilgrim Drawn Steel	S17
76 Pittsburgh Coke & Chem.	S18
77 Pittsburgh Steel Co.	S19
79 Pittsburgh Tube Co.	S20
711 Pollak Steel Co.	S24

Sparrows Pt., Md. B2	5.325
Sterling, Ill. (1) N15	5.225
Struthers, O. Y1	5.225
Torrance, Calif. C11	6.175
Waukegan, Ill. A7	5.225
Worcester, Mass. A7	5.525

**WIRE, Cold-Rolled Flat**

Anderson, Ind. G6	6.20
Buffalo W12 (43)	6.35
Cleveland A7 (43)	5.85
Crawfordsville, Ind. M8 (43)	5.85
Dover, O. G6	6.20
Fostoria, O. S1 (43)	6.00
Kokomo, Ind. C16 (43)	5.70
Franklin Park, Ill. T6 (43)	6.20
Massillon, O. R8 (43)	5.85
Monessen, Pa. P16 (43)	6.35
Monessen, Pa. P7 (43)	6.10
Pawtucket, R.I. (12) N8	6.85
Trenton, N.J. R5 (43)	6.15
Worcester, Mass. A7 (43)	6.15
Worcester, Mass. T6 (43)	6.50
Worcester, Mass. W12 (43)	6.65

**WIRE, Galv'd ACSR for Cores**

Bartonville, Ill. K4	8.90
Monessen, Pa. P16 (43)	8.50
Muncie, Ind. 1-7 (43)	8.70
Roebing, N.J. R5 (43)	8.80
Sparrows Pt. Md. B2 (43)	8.60
Johnstown, Pa. B2 (43)	8.50

**WIRE (16 gage) Stone Stone**  
(Add 4.7% on base and extras)

Alliquippa J5	10.15	12.15
Bartonville (19) K4	10.25	12.00*
Cleveland A7	10.25	11.55
Crawfordsville M8	10.25	12.00
Fostoria, O. S1	10.40	13.00
Johnstown B2	10.73	12.58*
Kokomo C16	10.625	12.325*
Minnequa C10	10.40	12.425*
Palmer, Mass. W12	10.25	12.15
Pitts., Cal. C11	10.60	11.90
Sparrows Pt. B2	10.84	12.68*
Waukegan A7	10.25	11.55
Worcester A7	10.25	11.55

\* Based on 14-cent; † 14.50 cent zinc. † Includes 4.7% increase.

**WIRE, MB Spring, High Carbon**

Alliquippa, Pa. J5 (43)	6.25
Alton, Ill. L1	6.85
Bartonville, Ill. K4	6.64
Buffalo W12 (43)	6.25
Cleveland A7 (43)	6.25
Donora, Pa. A7 (43)	6.25
Duluth, Minn. A7 (43)	6.25
Fostoria, O. S1 (43)	6.25
Johnstown, Pa. B2 (43)	6.25
Millbury (12) N6 (43)	8.05
Minnequa, Colo. C10 (43)	6.50
Monessen, Pa. P7 (43)	6.25
Monessen, Pa. P16	6.75
Muncie, Ind. 1-7 (43)	6.45
Palmer, Mass. W12 (43)	6.55
Pittsburgh, Calif. C11 (43)	7.20
Roebing, N.J. R5 (43)	6.55
Portsmouth, O. P12 (43)	6.25
So. Chicago, Ill. R2 (43)	6.25
So. San Fran. C10 (43)	7.20
Sparrows Pt., Md. B2 (43)	6.35
Struthers, O. Y1 (43)	6.25
Trenton, N.J. A7 (43)	6.55
Waukegan, Ill. A7 (43)	6.25
Worcester A7, T6 (43)	6.55
Worcester, Mass. W12 (43)	6.55
Worcester, Mass. J4 (43)	6.75

**WIRE, Tire Bead**

Bartonville, Ill. K4	11.51
Monessen, Pa. P16 (43)	11.40
Roebing, N.J. R5 (43)	11.55

**WIRE, Fine & Weaving (8" Coils)**

Bartonville, Ill. K4	9.42
Buffalo W12 (43)	8.90
Chicago W13	9.32
Cleveland A7 (43)	8.90
Crawfordsville, Ind. M8 (43)	8.90
Fostoria, O. S1 (43)	8.90
Johnstown, Pa. B2 (43)	8.90
Kokomo, Ind. C16 (43)	8.90
Monessen, Pa. P16 (43)	8.90
Muncie, Ind. 1-7 (43)	9.10
Palmer, Mass. W12 (43)	9.20
Roebing, N.J. R5 (43)	9.20
Waukegan, Ill. A7 (43)	8.90
Worcester, Mass. A7, T6 (43)	9.20

**WIRE, Barbed Col.**

Alabama City, Ala. R2	144
Alliquippa, Pa. J5	147
Atlanta A11	149
Bartonville, Ill. (19) K4	146
Crawfordsville, Ind. M8	146
Donora, Pa. A7	142
Duluth, Minn. A7	142
Fairfield, Ala. T2	142
Houston, Tex. S5	150
Johnstown, Pa. B2	147
Joliet, Ill. A7	142
Kansas City, Mo. S5	154
Kokomo, Ind. C16	149
Minnequa, Colo. C10	153
Monessen, Pa. P7	147
Pittsburgh, Calif. C11	162
Rankin, Pa. A7	142
So. Chicago, Ill. R2	144
So. San Fran., Calif. C10	167
Sparrows Pt., Md. B2	149
Sterling, Ill. (1) N15	146

\* Based on 14-cent zinc.

**WIRE, Upholstery Spring**

Alliquippa, Pa. J5	6.275
Alton, Ill. L1	6.50
Buffalo W12	6.275
Cleveland A7	6.275
Donora, Pa. A7	6.275
Duluth, Minn. A7	6.275
Johnstown, Pa. B2	6.275
Los Angeles B3	7.225
Minnequa, Colo. C10	6.525
Monessen, Pa. P7	6.275
Monessen, Pa. P16 (42)	6.40
New Haven, Conn. A7	6.575
Palmer, Mass. W12	6.575
Pittsburgh, Calif. C11	7.225
Portsmouth, O. P12	6.275
Roebing, N.J. R5	6.575
So. Chicago, Ill. R2	6.275
So. San Francisco C10	7.225
Sparrows Pt., Md. B2	6.375
Torrance, Calif. C11	7.225
Trenton, N.J. A7	6.575
Waukegan, Ill. A7	6.275
Worcester, Mass. A7	6.575

**WOVEN FENCE, 9-15 1/2 Ga. Col.**

Alabama City, Ala. R2	135
Ala. City, Ala. 17-18ga. R2	222
Alliquippa, Pa. 9-14 1/2 ga. J5	131
Atlanta A11	140
Bartonville, Ill. (19) K4	137
Crawfordsville, Ind. M8	140
Donora, Pa. A7	133
Duluth, Minn. A7	133
Fairfield, Ala. T2	133
Houston, Tex. S5	141
Johnstown, Pa. B2	138
Johnstown, 17ga., 6" B2	229
Joliet, Ill. A7	133
Kansas City, Mo. S5	145
Kokomo, Ind. C16	140
Minnequa, Colo. C10	146
Monessen, Pa. P7	138
Pittsburgh, Calif. C11	156
Rankin, Pa. A7	133

Tenn. Coal & Iron Div.	T2
Tenn. Prod. & Chem.	T3
Texas Steel Co.	T4
Thomas Strip Division,	T5
Pittsburgh Steel Co.	T6
Thompson Wire Co.	T7
Timken Roller Bearing	T8
Tonawanda Iron Div.,	T9
Am. Rad. & Stan. San.	
Universal Cyclops Steel	U4
United States Steel Co.	U5
Vanadium-Alloys Steel	V2
Vulcan Crucible Steel Co.	V3
Wallace Barnes Co.	W1
Wallingford Steel Co.	W2
Washburn Wire Co.	W3
Washington Steel Corp.	W4
Weirton Steel Co.	W6
W. Va. Steel & Mfg. Co.	W7
West. Auto. Mach. Screw	W8
Wheatland Tube Co.	W9
Wheeling Steel Corp.	W10
Wickwire Spencer Steel	W12
Div., Colo. Fuel & Iron	
Wilson Steel & Wire Co.	W13
Wisconsin Steel Div.	W14
International Harvester	
Woodward Iron Co.	W15
Wyckoff Steel Co.	W18
Youngstown Sheet & Tube	Y1

So. Chicago, Ill. R2	135
Sterling, Ill. (1) N15	137

\* Based on 14-cent zinc.

**BALE TIES, Single Loop Col.**

Alabama City, Ala. R2	132
Atlanta A11	135
Bartonville, Ill. (19) K4	132
Crawfordsville, Ind. M8	134
Donora, Pa. A7	132
Duluth, Minn. A7	132
Fairfield, Ala. T2	132
Joliet, Ill. A7	132
Kansas City, Mo. S5	144
Kokomo, Ind. C16	134
Minnequa, Colo. C10	137
Pittsburgh, Calif. C11	156
So. Chicago, Ill. R2	132
So. San Fran., Calif. C10	156
Sparrows Pt., Md. B2	134
Sterling, Ill. (1) N15	132

**FENCE POSTS**

Chicago Hts., Ill. C2	145
Duluth, Minn. A7	133
Houston, Tex. S5	145
Franklin, Pa. F5	145
Huntington, W. Va. W7	148
Johnstown, Pa. B2	148
Marion, O. P11	140
Minnequa, Colo. C10	138
Moline, Ill. R2	136
So. Chicago, Ill. R2	140
Tonawanda, N.Y. B12	148
Williamsport, Pa. S19	153

**TRACK BOLTS (20) Treated**

Kansas City, Mo. S5	9.85
Lebanon, Pa. (31) B2	9.85
Minnequa, Colo. C10	9.85
Pittsburgh O3, P14	9.85

**AXLES**

Ind. Harbor, Ind. S13	5.65
Johnstown, Pa. B2	5.65

**RAILS, Stock**

To dealers & mfrs. (7) Col.

Alabama City, Ala. R2 (44)	118
Alliquippa, Pa. J5 (44)	118
Atlanta A11	130
Bartonville, Ill. (19) K4	127
Chicago, Ill. W13 (44)	118
Cleveland A9 (44)	125
Crawfordsville, Ind. M8	130
Donora, Pa. A7 (44)	118
Duluth, Minn. A7 (44)	118
Fairfield, Ala. T2 (44)	118
Galveston, Tex. D7 (44)	126
Houston, Tex. S5 (44)	126
Johnstown, Pa. B2 (44)	118
Joliet, Ill. A7 (44)	118
Kansas City, Mo. S5 (44)	130
Kokomo, Ind. C16	129
Minnequa, Colo. C10 (44)	123
Monessen, Pa. P7	123
Pittsburgh, Calif. C11 (44)	137

Sid. No. 1	Sid. No. 2	All 60 lb	Under
3.775	3.675	3.725	4.25
3.775	3.675	...	4.25
3.775	3.675	3.725	...
3.775	3.675	3.725	5.25
3.775	3.675	3.725	...
3.775	3.675	...	(16) 4.25
3.775	3.675	...	4.25
\$75.50	\$73.50	...	4.75
3.775	3.675	...	...
...	...	...	5.00

\* Per net ton.

**TOOL STEEL**  
(Prices subject to 4.7% increase)

Grade	Carbon	\$ per lb
Regular Carbon	0.230	
Extra Carbon	0.270	
Special Carbon	0.325	
Oil Hardening	0.350	
5% Cr Hot Work	0.350	
Hi-Carbon-Cr	0.635	

**Grade by Analysis**

W	Cr	V	Co	
18	4	1	...	1.505
18	4	2	...	1.65-1.66
20.25	4.25	1.6	12.25	3.535-3.675
19	4	2	7	2.460
18.25	4.25	1	4.75	2.125
18	4	2	9	2.445-2.45
13.5	4	3	...	1.6025
9	3.25	0.5	...	1.01

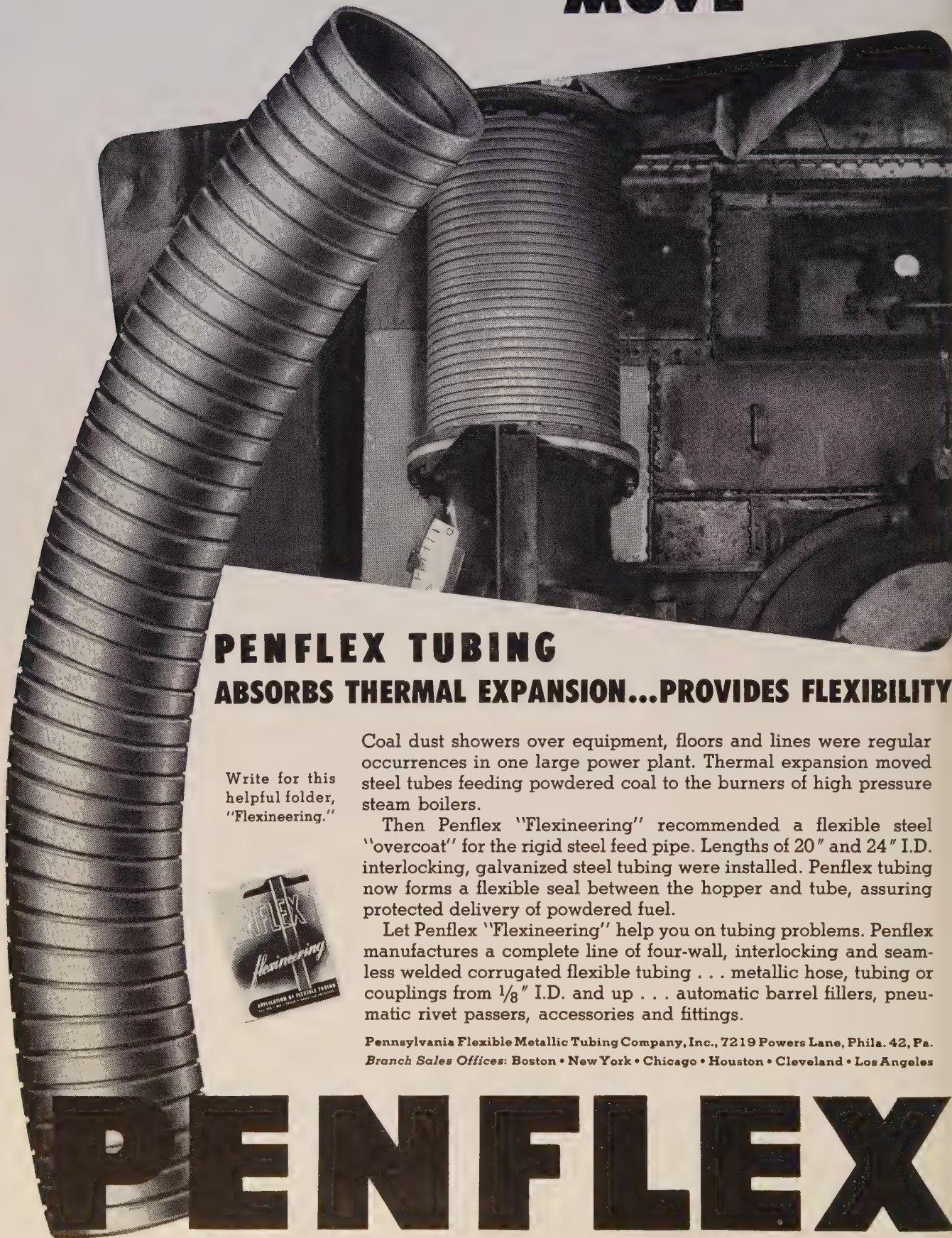
**Tool steel producers include:**  
A4, A8, B2, B8, C4, C9, C13, C18, D4, F2, J3, L3, M14, SS, U4, V2 and V3.

- Footnotes**
- (1) Chicago base.
  - (2) Angles, flats, bands.
  - (3) Merchant.
  - (4) Reinforcing.
  - (5) Chicago or Birm. base.
  - (6) To jobbers, 3 coils lower.
  - (7) 16 gage and heavier.
  - (8) 6 in. and narrower.
  - (9) Pittsburgh base.
  - (10) Cleveland & Pitts base.

Portsmouth, O. P12	132
Rankin, Pa. A7 (44)	118
So. Chicago, Ill. R2 (44)	118
Sparrows Pt., Md. B2 (44)	120
Sterling, Ill. (1) N15	(44) 118
Torrance, Calif. C11 (44)	138
Worcester, Mass. A7 (44)	124
APPLES, Polished, Stock	
To dealers & mfrs. (7)	Col.
Alabama City, Ala. R2 (44)	118
Atlanta A11	129
Uptonville, Ill. (19) K4	126
Chicago W13	127
Lafayetteville, Ind. M8	128
Monrovia, Pa. A7 (45)	118
St. Paul, Minn. A7 (45)	118
Trinidad, Ala. T2 (45)	118
Winnston, Pa. B2 (45)	118
Wilmington, A7 (45)	118
Wilmington, Ind. C16	128
Winnona, Pa. C10	123
Winnston, Pa. P7	127
Winnston, Calif. C11 (45)	137
Winnston, Mo. P12	132
Winnston, Pa. A7 (45)	118
Winnston, Md. B2 (45)	120
Sterling, Ill. (1) N15 (45)	118
Torrance, Calif. C11 (45)	138
Worcester, Mass. A7 (45)	124
MILK, Cud (100 lb keg)	
To dealers (33)	
Shoshohocken, Pa. A3	\$.78.00
Sheehing, W. Va. W10	\$.78.00
PLATES	
Albion, Ala. T2	4.775
Albion, Ind. U5	4.775
Albion Harbor, Ind. I-2	4.775
Albion, N.Y. B2	4.775
Albion, Colo. C10	\$.95.50*
Albion, Calif. C11	4.925
Albion B3	4.925
Albion, Pa. B2	4.775
Albion, Calif. C11	4.925
Per net ton.	
SINK BARS	
Albion, Pa. U5	4.925
Albion, Ala. T2	4.925
Albion Harbor, Ind. I-2	4.925
Albion, Ill. U5	4.925
Albion, N.Y. B2	4.925
Albion, Colo. C10	4.925
Albion, Pa. B2	4.925
STANDARD TRACK SPIKES	
Albion Harbor, Ind. I-2, Y1	6.65
Albion, Mo. S5	6.90
Albion, Pa. B2	6.65
Albion, Colo. C10	6.65
Albion, J5	6.65
Albion B3	7.15
Albion, Ill. R2	6.65
Albion, O. Y1	6.65
Albion, R2	6.65
Std. Tee Rails	
Std. No. 2	All No. 2 Under 60 lb
775	3.675 3.725 4.25
775	3.675 4.25
775	3.675 3.725 4.25
775	3.675 3.725 5.25
775	3.675 (16) 4.25
775	3.675 4.25
5.50* 775.50*	4.75
775	3.675 4.75
775	5.00
(12) Worcester, Mass. base.	
(13) Add .50¢ for 17 ga & heavier.	
(15) 1/2" and thinner.	
(16) 40 lb and under.	
(17) Flats only.	
(18) To dealers.	
(19) Chicago & Pitts. base.	
(20) 0.25¢ off for untreated.	
(21) New Haven Conn., base	
(22) Del. San Francisco Bay area	
(23) 20 Ga. 36" wide.	
(24) Deduct 0.20¢, finer than 15 Ga.	
(25) Bar mill bands.	
(26) Reinforcing, mill lengths, to fabricators; to consumers, 5.85¢.	
(27) Bar mill sizes.	
(28) Bonded.	
(29) Add \$31.50 per ton.	
(30) Sheared, add 0.35¢ for universal mill.	
(31) Not annealed.	
(32) Rtd. or square edge.	
(33) To jobbers, deduct 20¢.	
(34) 7.85¢ for cut lengths.	
(35) 72" and narrower.	
(36) 54" and narrower.	
(37) 15 gage & lighter: 60" & narrower.	
(38) 14 gage & lighter: 48" & narrower.	
(39) 48" and narrower.	
(40) Lighter than 0.035"; 0.035" and heavier.	
(41) 9.10¢ per cut lengths.	
(42) Plus 0.375¢ per 100 lb.	
(43) Plus 4.7¢ on base and extras.	
(44) Plus 45¢ per 100 lb.	
(45) Plus 40¢ per 100 lb.	



# LET'S EXPANSION KEEP ON THE MOVE



## PENFLEX TUBING ABSORBS THERMAL EXPANSION...PROVIDES FLEXIBILITY

Write for this  
helpful folder,  
"Flexineering."



Coal dust showers over equipment, floors and lines were regular occurrences in one large power plant. Thermal expansion moved steel tubes feeding powdered coal to the burners of high pressure steam boilers.

Then Penflex "Flexineering" recommended a flexible steel "overcoat" for the rigid steel feed pipe. Lengths of 20" and 24" I.D. interlocking, galvanized steel tubing were installed. Penflex tubing now forms a flexible seal between the hopper and tube, assuring protected delivery of powdered fuel.

Let Penflex "Flexineering" help you on tubing problems. Penflex manufactures a complete line of four-wall, interlocking and seamless welded corrugated flexible tubing . . . metallic hose, tubing or couplings from 1/8" I.D. and up . . . automatic barrel fillers, pneumatic rivet passers, accessories and fittings.

Pennsylvania Flexible Metallic Tubing Company, Inc., 7219 Powers Lane, Phila. 42, Pa.  
Branch Sales Offices: Boston • New York • Chicago • Houston • Cleveland • Los Angeles

# PENFLEX

## HEART OF INDUSTRY'S LIFE LINES

STEEL



**BUTTWELD STANDARD PIPE, T & C** Carload discounts from list, %

Size-Inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
List Per Ft	8.5c	11.5c	17c	23c	27.5c	37c	58.5c	74.5c
Pounds Per Ft	0.85	1.13	1.68	2.28	2.73	3.68	5.82	7.62
	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Galv
Aliquippa, Pa. J5 (†)	32.5	15.25	35.5	18.25	38.5	20.5	40	21.25
Alton, Ill. L1	29.5	10.5	32.5	14.5	35	18.5	37	20.5
Benwood, W. Va. W10	32.5	13.25	35.5	17.25	38	20.5	40	21.75
Etna, Pa. N2 (†)	32.5	13.25	35.5	17.25	38	20.5	40	21.75
Fontana, Calif. K1 (†)	21	1.75	24	5.75	26.5	9.25	28.5	10.25
Ind. Harbor, Ind. Y1 (†)	31.5	14.25	34.5	18.25	37	21.75	39	21.75
Lorain, O. N3 (*)	32.5	22.25	35.5	26.25	38	29.75	40	26.25
Sharon, Pa. M6	32.5	14.25	35.5	18.25	38	21.25	40	20.75
Sparrows Pt., Md. B2	30.5	11.25	33.5	15.25	36	18.75	38	19.75
Youngstown R2 (†)	32.5	15.25	35.5	19.25	38	22.75	40	22.75
Youngstown Y1 (†)	32.5	15.25	35.5	19.25	38	22.75	40	22.75
Wheatland, Pa. W9	32.5	13.25	35.5	16.25	38	18.75	40	20.25

**SEAMLESS STANDARD PIPE, T & C** Carload discounts from list, %

Size-Inches	2	2 1/2	3	3 1/2	4	5	6	502 and 34.25c on Type 301 S3.
List Per Ft	37c	58.5c	76.5c	92c	\$1.09	\$1.48	\$1.92	So. Chicago, Ill., bars & structurals U5.
Pounds Per Ft	3.68	5.82	7.62	9.20	10.89	14.81	19.18	Syracuse, N. Y., bars, wire & structurals C18.
	Blk	Galv	Blk	Galv	Blk	Galv	Blk	Titusville, Pa., bars U4.
Aliquippa, Pa. J5 (†)	24	6	27	8.25	29	10.25	33.75	Wallington, Conn., strip W2 quotes 0.25c higher.
Ambridge, Pa. N2	24	6	27	8.25	29	10.25	33.75	Washington, Pa., bars, sheets & strip, except 0.25c higher on Type 301 J3.
Lorain, O. N3 (*)	24	12.75	27	12.75	29	14.75	33.75	Washington, Pa., Types 301 through 347 sheets & strip except 303, 309; 316 sheets 62.00c, strip 64.00c W4.
Youngstown Y1 (†)	24	7.50	27	9.25	29	11.25	33.75	Watervliet, N. Y., structurals & bars A4 quotes variations on Types 301-347.

**ELECTRIC WELD STANDARD PIPE, T & C**

Youngstown, R2 (†)	24	7.50	27	9.25	29	11.25	33.75	16	33.75	16
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**BUTTWELD STANDARD PIPE, T & C** Carload discounts from list, %

Size-Inches	1 1/2	2	2 1/2	3	3 1/2	4
List Per Ft	5.5c	6c	6c	92c	\$1.09	10.89
Pounds Per Ft	0.24	0.42	0.57	0.92	10.89	10.89
	Blk	Galv	Blk	Galv	Blk	Galv
Benwood, W. Va. W10	29.5	+0.25	32.25	+3.5	17.75	+7.75
Butler, Pa. F6 (†)	30.5	1.25	25	+1.75	20	+5.5
Etna, Pa. N2 (†)	30.5	1.25	25	+1.75	20	+5.5
Sharon, Pa. M6 (†)	29.5	+0.25	23	+4.25	18	+8.25
Sparrows Pt., Md. B2	28.5	+0.75	23	+3.75	18	+7.50
Youngstown R2 (†)	28.5	+0.75	23	+3.75	18	+7.50
Wheatland, Pa. W9	28.5	+0.75	23	+3.75	18	+7.50

Galvanized pipe discounts based on zinc price of: (†), 14c; (‡), 12.50c; (§), 14.50c; (\*), 5c, with discounts adjusted depending on price of zinc at time of shipment.

**STAINLESS STEEL**

(Add 4.7% on base price and extras)

Type	Sheets	C.R. Strip	Bars Wire
301...	41.00	34.00	31.25
302...	41.25	36.75	31.50
303...	43.25	40.25	34.00
304...	43.25	38.75	33.00
309...	56.00	55.00	44.75
316...	57.00	59.00	49.25
321...	49.25	48.25	37.00
347...	53.75	52.25	41.50
410...	36.50	30.50	25.75
416...	37.00	37.00	26.25
420...	44.00	47.00	31.25
430...	39.00	31.00	26.25
501...	27.50	26.00	14.25
502...	28.50	27.00	15.25

Balt., Types 301-347 and 430 sheets, except 303 and 309 E2.

Brackenridge, Pa. sheets A4 quotes slight variations on Types 301-347.

Bridgeville, Pa., bars, wire, sheets & strip U4.

Butler, Pa. sheets and strip except Types 303, 309, 416, 420, 501 & 502, A10.

Carnegie, Pa., sheets and strip except Types 303, 416, 501 & 502 S18.

Cleveland, strip A7.

Detroit, strip M1 quotes 34.00c on Type 301; 36.50c, 302, 38.50c, 304; 58.50c, 316, 52.00c, 347; 30.50c, 410; 31.00c, 430.

Dunkirk, N. Y., bars, wire A4 quotes slight variations on Types 301-347.

Duquesne, Pa., bars U5.

Fort Wayne, Ind., bars and wire, except Types 501 & 502 J6 quotes slight variations on Types 301-347.

Gary, Ind., sheets except Type 416 U5.

Harrison, N. J., strip and wire C18.

Massillon, O., all items, R2.

McKeesport, Pa., strip, Type 410; bars & wire, Types 410 through 430 and 31.25c on Type 302, 33.75c on 303, 32.75c on 304, 48.75c on 316, 36.75c on 321, 41.25c on 347 F2.

McKeesport, Pa., bars, sheets except Type 416 U5.

Middletown, O., sheets and strip except Types 303, 416, 420, 501 and 502 A10.

Midland, sheets & strip C18.

Munhall, Pa., bars U5.

Muncie, Ind., wire I-7 quotes types 302, 304, 430.

Pittsburgh, sheets C18.

Reading, Pa., strip except 34.25c on Type 301 and 56.00c on 309; bars, except 31.50c on Type 301 and 45.25c on 309 C4.

Sharon, Pa., strip, except Types 303, 309, 416, 501,

**BOILER TUBES**

Net base c.l. prices, dollars per 100 ft., mill; minimum wall thickness, cut lengths 10 to 24 ft., inclusive.

I.O.D.	B.W.	Seamless	Elec. Weld
In.	Gage	H.R.	C.D.
1 1/4	13	14.19	16.71-17.77
1 1/2	13	16.97	19.80-21.26
1 3/4	13	18.22-18.77	22.08-22.82
2	13	20.35-21.35	24.92-25.49
2 1/4	13	22.51-23.93	27.94-28.58
2 1/2	13	25.69-28.66	31.34-32.18
2 3/4	13	28.40-29.36	34.55-35.58
3	12	31.28-32.17	37.83-39.19
3 1/2	12	33.57-34.52	40.09-42.44
4	12	35.78-36.57	42.11-44.93

**BOLTS, NUTS**

**CARRIAGE MACHINE BOLTS**

(F.o.b. midwestern plants; per cent off list for less than case lots to consumers)

6 in. and shorter:

1/2-in. & smaller diam. 15

3/4-in. & 1-in. 18.5

1 1/4-in. & larger 17.5

Longer than 6 in.:

All diams. 14

Lag bolts, all diams.:

6 in. and shorter 23

over 6 in. long 21

Ribbed Necked Carriage 18.5

Blank 34

Step, Elevator, Tap and 21

Sleigh Shoe 21

Tire Bolts 21

Boiler & Fitting-Up Bolts 31

H.P. & C.P. Reg. Hvy. Square:

1/2-in. & smaller 15

1/2-in. to 1-in. 23.5

1-in. to 1 1/2-in. 26

**SQUARE HEAD SET SCREWS**

(Packaged; per cent off list)

1 in. diam x 6 in. and shorter 38

1 in. and smaller diam. 26

x over 6 in. 26

**HEADLESS SET SCREWS**

(Packaged; per cent off list)

No 10 and smaller 35

1/2-in. diam. & larger 18

N.F. thread, all diams. 10

**STEEL STOVE BOLTS**

(F.o.b. plant, per cent off list in packages)

Plain finish 48 & 10

Plated finishes 31 & 10

**HEXAGON CAP SCREWS**

(1020 steel; packaged; per cent off list)

6 in. or shorter:

1/2-in. & smaller 42

3/4-in. through 1 in. 34

Longer than 6 in.:

1/2-in. & smaller 26

3/4-in. through 1 in. 4

**RIVETS**

F.o.b. midwestern plants

Structural 1/2-in., larger 7.85c

1/4-in. under 36 off

**ELECTRODES**

(Threaded, with nipples, unboxed f.o.b. plant)

1/2-in. 48

3/4-in. 48

1-in. 48

1 1/4-in. 48

1 1/2-in. 48

2-in. 48

2 1/2-in. 48

3-in. 48

3 1/2-in. 48

4-in. 48

4 1/2-in. 48

5-in. 48

5 1/2-in. 48

6-in. 48

6 1/2-in. 48

7-in. 48

7 1/2-in. 48

8-in. 48

8 1/2-in. 48

9-in. 48

9 1/2-in. 48

10-in. 48

10 1/2-in. 48

11-in. 48

11 1/2-in. 48

12-in. 48

12 1/2-in. 48

13-in. 48

13 1/2-in. 48

14-in. 48

14 1/2-in. 48

15-in. 48

15 1/2-in. 48

16-in. 48

16 1/2-in. 48

17-in. 48

17 1/2-in. 48

18-in. 48

18 1/2-in. 48

19-in. 48

19 1/2-in. 48

20-in. 48

20 1/2-in. 48

21-in. 48

21 1/2-in. 48

22-in. 48

22 1/2-in. 48

23-in. 48

23 1/2-in. 48

24-in. 48

24 1/2-in. 48

25-in. 48

25 1/2-in. 48

26-in. 48

26 1/2-in. 48

27-in. 48

27 1/2-in. 48

28-in. 48

28 1/2-in. 48

29-in. 48

29 1/2-in. 48

30-in. 48

30 1/2-in. 48

31-in. 48

31 1/2-in. 48

32-in. 48

32 1/2-in. 48

33-in. 48

33 1/2-in. 48

34-in. 48

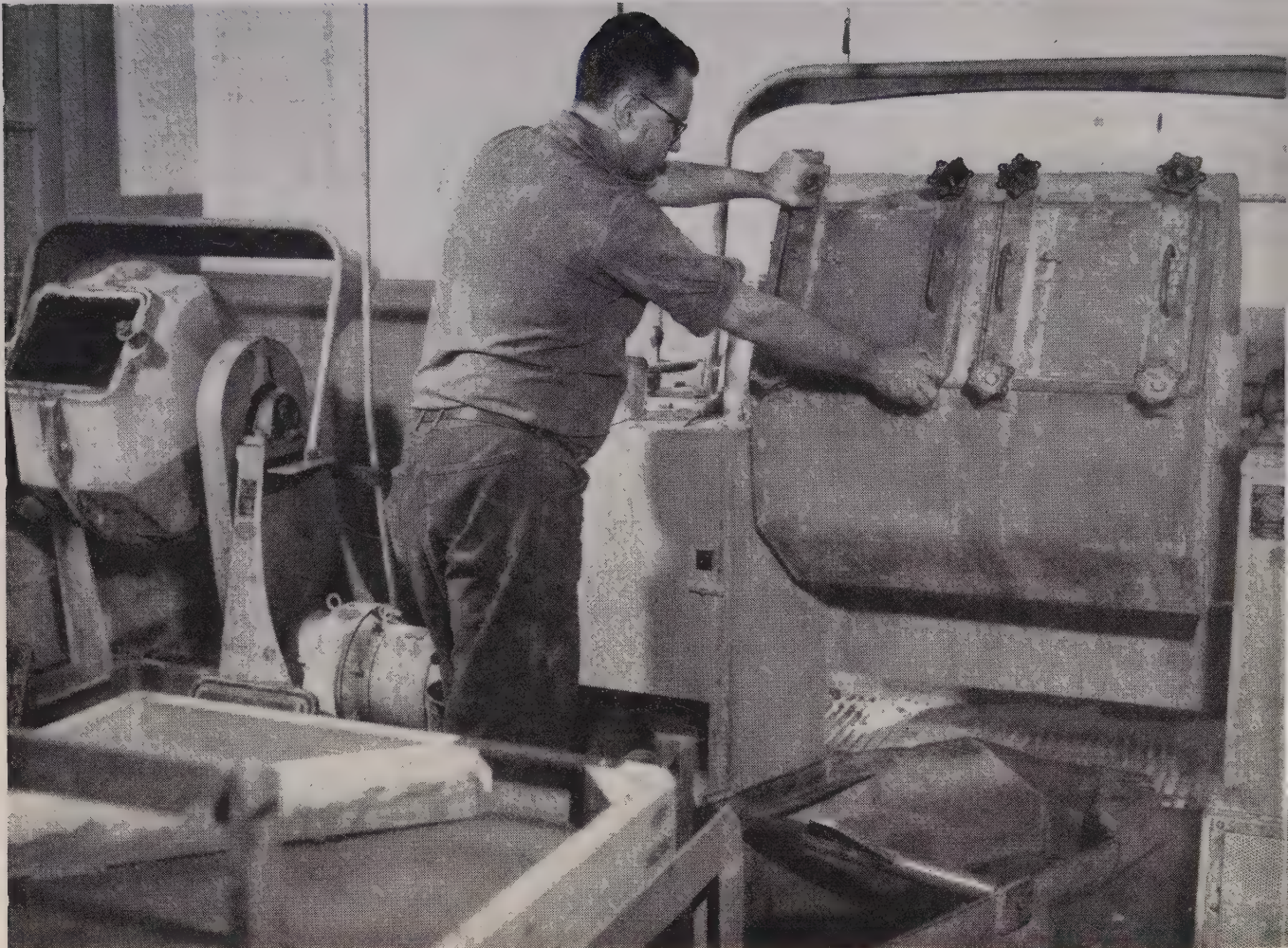
34 1/2-in. 48

35-in. 48

35 1/2-in. 48

36-in. 48





One of a number of different Tumbling barrels in which sample parts are processed in the new Norton barrel-finishing department.

## New Norton sample processing department helps manufacturers speed up production

Plan now to take advantage of this new enlarged service department.

If you'd like to find faster methods for deburring and forming uniform radii on vitally needed parts — or if you have special problems in finishing parts ranging from tiny needles to castings and forgings weighing several pounds — send us samples of your parts. Tumbling is very likely the answer to your problem. And the new Norton sample processing department is the ideal set-up for finding just exactly what you can accomplish through barrel-finishing. Many manufacturers have already realized substantial savings and speed-ups in production through this service.

This new Norton department has a variety of Tumbling barrels of different types and capacities plus auxiliary equipment such as a mechanically vibrated screen. Here, Norton production engineers determine for you —

without charge or obligation — just exactly what tumbling can do for the metal parts you send. Detailed recommendations are then given so that you can know exactly how to get the best results for your particular problem. These recommendations include barrel type, size and speed, size and amount of ALUNDUM\* Tumbling Abrasives to be used, amount of water, type and amount of compound or cleaner, time cycles and other data.

### Send Samples Now

For sample processing, we need: representative sample parts plus (a) the finished sample to be matched (hand-finished, if necessary) and (b) information on your present barrel-finishing equipment, if any, including type and size of barrel and barrel speeds. These should be sent to Norton Company, Worcester 6, Massachusetts, attention of Sales Engineering Department, Abrasive Division.

About a week is required for processing the samples after they have been received.

Meanwhile, for further information get the 55-page Norton handbook on barrel-finishing. Ask your Norton Distributor for Form 501 or write us direct.

\*Trade-Mark Reg. U. S. Pat. Off.

**NORTON COMPANY, Worcester 6, Mass.**  
Distributors In All Principal Cities  
Export: Norton Behr-Manning Overseas  
Incorporated, Worcester 6, Mass.

**NORTON**  
ABRASIVES

*Making better products to make  
other products better*



## WAREHOUSE STEEL PRODUCTS

(Representative prices, cents per pound for delivery within switching limits, subject to extras.)

	SHEETS		Gal. 10 Ga.†	STRIP		BARS		Standard Structural Shapes	PLATES	
	H.R. 18 Ga. Heavier*	C.R.		H.R.*	C.R.*	H.R. Rds.	C.F. Rds.		Carbon	Floor
New York (city)	6.56	7.57	8.72	6.88	...	6.89	7.83†	11.34	6.90	8.31
Jersey City (city)	6.35	7.27	8.47	6.75	...	6.59	7.53	9.54	6.80	8.01
Boston (city)	6.71	7.56	8.83	6.75	...	6.62	7.69†	11.38	7.00	8.18
Boston (city)	6.51	7.36	8.63	6.55	...	6.42	7.49†	11.18	6.80	7.98
Phila. (city)	6.36	7.38	8.55	6.70	8.55	6.67	7.70†	11.04	6.49	7.62
Phila. (city)	6.11	7.13	8.30	6.45	8.30	6.42	7.45†	10.79	6.24	7.36
Balt. (city)	6.01	7.37	8.62	6.62	...	6.61	7.62†	11.37	6.67	7.90
Balt. (city)	5.81	7.17	8.42	6.42	...	6.41	7.42†	11.17	6.47	7.70
Norfolk, Va.	7.60	...	...	...	...	6.44	8.45	...	7.25	7.33
Richmond, Va.	6.14	6.95	8.68	6.53	...	6.30	7.38	...	6.58	7.80
Wash. (w'hse)	6.31	7.61	8.90	6.89	...	6.90	7.78	...	6.93	8.17
Buffalo (del.)	6.00	6.85	8.61	6.41	...	6.10	7.15†	11.27	6.28	7.87
Buffalo (w'hse)	5.80	6.65	8.41	6.21	...	5.90	6.95†	11.07	6.08	7.67
Pitts. (w'hse)	5.80	6.65	8.00	5.97	...	5.83	6.90†	10.65	5.95	7.18
Detroit (w'hse)	6.07	6.92	8.64	6.13	7.70-8.03	6.12	7.10†	10.92	6.42	7.52
Cleveland (del.)	6.00	6.85	8.34	6.20	...	6.09	7.10†	10.99	6.48	7.71
Cleve. (w'hse)	5.80	6.65	8.14	6.00	...	5.89	6.90†	10.79	6.28	7.51
Cincin. (city)	6.28	6.87	8.62	6.29	...	6.28	7.31†	11.22	6.57	7.75
Chicago (city)	6.00	6.85	8.20	6.03	...	6.03	7.00†	10.85	6.15	7.38
Chicago (w'hse)	5.80	6.65	8.00	5.83	...	5.83	6.80†	10.65	5.95	7.18
Milwau. (city)	6.17	7.02	8.37	6.20	...	6.20	7.27†	11.02	6.32	7.55
Milwau. (city)	5.97	6.82	8.17	6.00	...	6.00	7.07†	10.82	6.12	7.35
St. Louis (del.)	6.30	7.14	8.50	6.34	...	6.33	7.40†	11.15	6.55	7.78
St. L. (w'hse)	6.10	6.94	8.00	6.14	...	6.13	7.20†	10.95	6.35	7.58
Birm'hm (city)	5.95	6.80	7.85‡	5.95	...	5.95	8.40	...	6.10	8.65
Birm'hm (w'hse)	5.80	6.65	7.70‡	5.80	...	5.80	8.40	...	5.95	8.65
Los Ang. (city)	6.80	8.65	9.85	6.95	11.40	6.80	8.89†	12.25	6.84	9.67
L. A. (w'hse)	6.60	8.45	9.65	6.75	11.20	6.60	8.69†	12.05	6.64	9.47
Seattle-Tacoma	7.37	9.97	9.90	7.64	...	7.14	9.62†	10.90‡	6.89	9.11
S. Fran. (w'hse)	6.90	8.20	9.60	6.75	...	6.65	8.70†	12.05	6.50	8.90

\*Prices do not include gage extras; † prices include gage and coating extras, except Birmingham (coating extra excluded) and Los Angeles (gage extra excluded); ‡ includes 25-cent special bar quality extra; § as rolled; ¶ as annealed. Base quantities, 2000 to 9999 lb except as noted. Cold-rolled strip, 2000 lb and over; cold-finished bars, 2000 lb and over; ‡—500 to 1499 lb; §—450 to 1499 lb; ¶—1000 to 1999 lb.

## Ores

## Lake Superior Iron Ore

Gross ton, 51½% (natural), lower lake ports.  
 Old range bessemer ..... \$9.45  
 Old range nonbessemer ..... 9.30  
 Mesabi bessemer ..... 9.20  
 Mesabi nonbessemer ..... 9.05  
 High phosphorus ..... 9.05  
 After adjustment for analysis, prices will be increased or decreased as the case may be for increases or decreases after Dec. 1, 1950, in applicable lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.

## Eastern Local Iron Ore

Cents per unit del., E. Pa.  
 Foundry and basic 56-62% concentrates contract ..... 17.00

## Foreign Iron Ore

Cents per unit, c.i.f. Atlantic ports  
 Swedish basic, 60 to 68%: .....  
 Spot ..... nom.  
 Long-term contract ..... 24.00  
 North African hematites (spot) ..... 26.00-28.00  
 Brazilian iron ore, 67-69% (spot) ..... 32.00

## Tungsten Ore

Net ton unit, duty paid  
 Foreign wolframite and scheelite, per net ton unit ..... \$65.00  
 Domestic scheelite, mines ..... 65.00

## Manganese Ore

Manganese, 48% nearby, \$1.18-1.22 per long ton unit, c.i.f. U. S. ports, duty for buyer's account; shipments against old contracts for 48% ore are being received from some sources at 85c-87c.

## Chrome Ore

Gross ton, f.o.b. cars, New York, Philadelphia, Baltimore, Charleston, S. C., plus ocean freight differential for delivery to Portland, Ore., or Tacoma, Wash.

## Indian and African

48% 2.8:1 ..... \$39.00-42.00  
 48% 3:1 ..... 44.00-45.00  
 48% no ratio ..... 30.00-32.00

## South African Transvaal

44% no ratio ..... \$27.00-28.00  
 48% no ratio ..... 34.00-35.00

## Brazilian

44% 25:1 lump ..... nom.

## Domestic

(Rail nearest seller)  
 48% 3:1 ..... \$39.00

## Molybdenum

Sulphide concentrates per lb, molybdenum content, mines ..... \$1.00

## MANGANESE ALLOYS

Spiegeleisen: (19-21% Mn, 1-3% Si). Carlot per gross ton, \$85, Palmerton, Pa.; \$85, Pittsburgh and Chicago; (16% to 19% Mn) \$1 per ton lower.

Standard Ferromanganese: (Mn 78-82%, C 7% approx.) Carload, lump, bulk \$225 per gross ton of alloy, c.i. packed \$237; gross ton lots, packed, \$252; less gross ton lots, packed \$269; f.o.b. Alloy, W. Va., Niagara Falls, N. Y., Ashtabula, or Marietta, O. Base price: \$227, Johnstown, Pa.; \$225, Sheridan, Pa., Lynchburg, Va.; \$228, Etna, Pa.; \$226, Anaconda, Mont.

Shipment from Pacific Coast warehouses by one seller, add \$33 to above prices f.o.b. Los Angeles, Oakland, Portland, Ore. Shipment from Chicago warehouse, ton lots \$267; less gross ton lots, \$284, f.o.b. Chicago. Add or subtract \$2.80 for each 1% or fraction thereof, of contained manganese over 82% under 18%, respectively.

Low-Carbon Ferromanganese, Regular Grade: (Mn 85-90%). Carload, lump, bulk, max. 0.07% C, 27.95c per lb of contained Mn, carload packed 28.7c, ton lots 29.8c, less ton 31.0c. Delivered. Deduct 0.5c for max. 0.15% C grade from above prices, 1c for max. 0.30% C, 1.5c for max 0.50% C, and 4.5c for max 75% C—max 7% Si. Special Grade: (Mn 90% min, C 0.07% max, P 0.06% max).

Add 0.5c to the above prices. Spot, add 0.25c. Medium-Carbon Ferromanganese: (Mn 80-85%, C 1.5% max). Carload, lump, bulk 21.35c per lb of contained Mn, carload packed 22.1c, ton lot 23.2c, less ton 24.4c. Delivered, Spot, add 0.25c.

Manganese metal, 2" x D (Mn 96% min, Fe 2% max, Si 1% max, C 0.2% max): Carload, lump, bulk, \$36.2c per lb of metal; packed, 36.95c; ton lot 38.45c; less ton lots 40.45c. Delivered. Spot, add 2c.

Manganese, Electrolytic: 40,000 lb or more, 30c; 2000 to 39,999 lb, 32c; 250 to 1999 lb, 34c. Premium for hydrogen-removed metal, 1.5c per pound, f.o.b. cars Knoxville, Tenn. Freight allowed to St. Louis or to any point east of Mississippi.

Silicomanganese: (Mn 65-68%). Contract, lump, bulk 1.00 C grade 20" Si 1c per lb of alloy, carload packed, 12.15c, ton lots 13.05c, less ton 14.05c. Freight allowed. For 2% C grade, Si 15-17%, deduct 0.2c from above prices. For 3% C grade, Si 12-14.5%, deduct 0.5c from above prices. Spot, add 0.25c.

## TITANIUM ALLOYS

Ferrotitanium, Low-Carbon: (Ti 20-25%, Al 3.5% max, Si 4% max, C 0.10% max): Contract, ton lots 2" x D, \$1.50 per lb of contained Ti; less ton \$1.55. (Ti 38-43%, Al 8% max, Si 4% max, C 0.10% max). Ton

lots \$1.35, less ton \$1.37, f.o.b. Niagara Falls, N. Y., freight allowed to St. Louis. Spot Add 5c.

Ferrotitanium, High-Carbon: (Ti 15-18%, C 6-8%). Contract \$177 per net ton, f.o.b. Niagara Falls, N. Y., freight allowed to destinations east of Mississippi river and north of Baltimore and St. Louis.

Ferrotitanium, Medium-Carbon: (Ti 17-21%, C 2-4.5%) Contract, \$195 per ton, f.o.b. Niagara Falls, N. Y., freight not exceeding St. Louis rate allowed.

## OTHER FERROALLOYS

Ferrocolumbium: (Cb 56-60%, Si 8% max., C 0.4% max). Contract, ton lot, 2" x D, \$4.90 per lb of contained Cb, less ton \$4.95. Delivered. Spot, add 10c.

Ferrotantalum—Columbium: (Cb 40% approx, Ta 20% approx, and Cb and Ta 60% min, C 0.30% max) ton lots, 2" x D, \$3.75 per lb of contained Cb plus Ta, deld.; less ton lots \$3.80.

Silicaz Alloy: (Si 35-40%, Ca 9-11%, Al 6-8%, Zr 3-5%, Ti 9-11%, B 0.55-0.75%). Carload packed, 1" x D, 45c per lb of alloy, ton lot 47c, less ton lot 49c. Delivered.

SMZ Alloy: (Si 60-65%, Mn 5-7%, Zr 5-7%, Fe 20% approx). Contract, carload, packed, ½" x 12 M, 17.5c per lb of alloy, ton lots 18.25c, less ton 19.5c. Deld. Spot, add 0.25c.

Graphidox No. 4: (Si 48-52%, Ca 5-7%, Ti 9-11%). C.I. packed, 18c per lb of alloy; ton lots 19c; less ton lots 20.50c, f.o.b. Niagara Falls, N. Y.; freight allowed to St. Louis.

V-5 Foundry Alloy: (Cr 38-42%, Si 17-19%, Mn 8-11%). C.I. packed, 15c per lb of alloy; ton lots 16.50c; less ton lots 17.75c, f.o.b. Niagara Falls; freight allowed to St. Louis.

Simalal: (Approx 20% each Si, Mn, Al; bal. Fe) Lump, carload bulk 14.50c, packed 15.50c; ton lots, packed, 15.75c; less ton lots, packed, 16.25c per lb of alloy, delivered to destination within United States.

Ferrophosphorus: (23-25% based on 24% P content with unitage of \$3 for each 1% of P above or below the base); carloads, f.o.b. sellers' works, Mt. Pleasant, Siglo, Tenn., \$65 per gross ton.

Ferromolybdenum: (55-75%). Per lb, contained Mo f.o.b. Langloeth, \$1.32 in all sizes except powdered which is \$1.41; Washington, Pa., furnace, any quantity \$1.32.

Technical Molybdenic Oxide: Per lb, contained Mo, f.o.b. Langloeth, Pa., \$1.14, in cans; in bags, \$1.13, f.o.b. Langloeth, Pa.; Washington, Pa., \$1.13.

Note: For current prices on chromium, silicon, vanadium, boron and tungsten alloys see page 181, Dec. 1 issue; calcium, zirconium, briquetted alloys and refractories, page 157, Nov. 24 issue.



## CEILING PRICES, IRON AND STEEL SCRAP

Prices as set forth in Office of Price Stabilization ceiling price regulation No. 5, as amended Feb. 5, 1952.

STEELMAKING SCRAP  
COMPOSITE

Dec. 4	\$43.00
Nov. 27	43.00
Nov., 1952	43.00
Dec., 1951	43.00
Dec., 1947	40.13

Based on No. 1 heavy melting grade at Pittsburgh, Chicago and eastern Pennsylvania.

Basing point ceiling prices per gross ton from which maximum shipping prices are computed on scrap of dealer and industrial origin; and from which ceiling on-line and ceiling delivered prices are computed on scrap of railroad origin.

Grade 1	No. 1 Bundles Dealer, Industrial	No. 1 Heavy Melt Railroad
<b>Basing Point</b>		
Alabama City, Ala.	\$39.00	\$41.00
Ashland, Ky.	42.00	44.00
Atlanta, Ga.	39.00	41.00
Bethlehem, Pa.	42.00	44.00
Birmingham, Ala.	39.00	41.00
Brackenridge, Pa.	44.00	46.00
Buffalo, N. Y.	43.00	45.00
Butler, Pa.	44.00	46.00
Canton, O.	44.00	46.00
Chicago, Ill.	42.50	44.50
Cincinnati, O.	43.00	45.00
Claymont, Del.	42.50	44.50
Cleveland, O.	43.00	45.00
Coatesville, Pa.	42.50	44.50
Conshohocken, Pa.	42.50	44.50
Detroit, Mich.	41.15	43.15
Duluth, Minn.	40.00	42.00
Harrisburg, Pa.	42.50	44.50
Houston, Tex.	37.00	39.00
Johnstown, Pa.	44.00	46.00
Kansas City, Mo.	39.50	41.50
Kokomo, Ind.	42.00	44.00
Los Angeles	35.00	37.00
Middletown, O.	43.00	45.00
Midland, Pa.	44.00	46.00
Minneapolis, Colo.	38.00	40.00
Monessen, Pa.	44.00	46.00
Phoenixville, Pa.	42.50	44.50
Pittsburgh, Calif.	35.00	37.00
Pittsburgh, Pa.	44.00	46.00
Portland, Oreg.	35.00	37.00
Portsmouth, O.	42.00	44.00
St. Louis, Mo.	41.00	43.00
San Francisco	35.00	37.00
Seattle, Wash.	35.00	37.00
Sharon, Pa.	44.00	46.00
Sparrows Pt., Md.	42.00	44.00
Steubenville, O.	44.00	46.00
Warren, O.	44.00	46.00
Weirton, W. Va.	44.00	46.00
Youngstown, O.	44.00	46.00

## Differentials from Base

Differentials per gross ton for other grades of dealer and industrial scrap:

## O-H and Blast Furnace Grades

2. No. 1 Busheling	Base
3. No. 1 Heavy Melting	-\$1.00
4. No. 2 Heavy Melting	-1.00
5. No. 2 Bundles	-1.00
6. Machine Shop Turnings	-10.00
7. Mixed Borings and Short Turnings	-6.00
8. Shoveling Turnings	-6.00
9. No. 2 Busheling	-4.00
10. Cast Iron Borings	-6.00

## Elec. Furnace and Fory. Grades

11. Billet, Bloom & Forge Crops	+ 7.50
12. Bar Crops & Plate	+ 5.00
13. Cast Steel	+ 5.00
14. Punchings & Plate Scrap	+ 2.50
15. Electric Furnace Bundles	+ 2.00

## Cut Structural &amp; Plate:

16. 3 feet and under	+ 3.00
17. 2 feet and under	+ 5.00
18. 1 foot and under	+ 6.00
19. Briquetted Cast Iron Borings	Base

## Foundry, Steel:

20. 2 feet and under	Base
21. 1 foot and under	+ 2.00
22. Springs and Crankshafts	+ 1.00

23. Alloy Free Turnings	- 3.00
24. Heavy Turnings	- 1.00
25. Briquetted Turnings	Base
26. No. 1 Chemical Borings	- 3.00
27. No. 2 Chemical Borings	- 4.00
28. Wrought Iron	+10.00
29. Shafting	+10.00
31. Old Tin & Terne Plated Bundles	-10.00

## Unprepared Grades

When compressed constitutes:

32. No. 1 Bundles	- 6.00
33. No. 2 Bundles	- 9.00
34. Other than material suitable for hydraulic compression	- 8.00

## Restrictions on Use

(1) Prices for Grades 11 and 23 may be charged only when shipped to a consumer directly from an industrial producer; otherwise ceiling prices shall not exceed prices established for grades 12 and 8, respectively.

(2) Prices established for Grades 26 and 27 may be charged only when sold for use for chemical or annealing purposes, and in the case of Grade 27, for briquetting and direct charge into an electric furnace; otherwise ceiling prices shall not exceed price established for Grade 10.

(3) Prices established for Grade 28 may be charged only when sold to a producer of wrought iron; otherwise ceiling price shall not exceed ceiling price for corresponding grade of basic open-hearth.

(4) Premiums for Grades 11-18, 20 and 21 may be charged only when sold for use in electric and acid open-hearth furnaces or foundries; or in basic O-H or blast furnace under NPA allocation or OPS authorization.

(5) Prices for Grade 29 may be charged only when sold for forging or rerolling purposes.

## Differentials from Base

Differentials per gross ton above or below the price of Grade 1 (No. 1 railroad heavy melting steel) for other grades of railroad steel scrap:

2. No. 2 Heavy Melting Steel	-\$2.00
3. No. 2 Steel Wheel	Base
4. Hollow Bored Axles and loco. axles with keyways between the wheelseats	Base
5. No. 1 Busheling	- 3.50
6. No. 1 Turnings	- 3.00
7. No. 2 Turnings, Drillings & Borings	-12.00
8. No. 2 Cast Steel and uncut wheelcenters	- 6.00
9. Uncut Frogs, Switches	Base
10. Flues, Tubes & Pipes	- 8.00
11. Structural, Wrought Iron and/or steel, uncut	- 6.00
12. Destroyed Steel Cars	- 8.00
13. No. 1 Sheet Scrap	- 9.50
14. Scrap Rails, Random Lengths	+ 2.00
15. Rerolling Rails	+ 7.00
16. Cut Rails:	
3 feet and under	+ 5.00
2 feet and under	+ 6.00
18 inches and under	+ 8.00
17. Cast Steel, No. 1	+ 3.00
18. Uncut Tires	+ 2.00
19. Cut Tires	+ 5.00
20. Bolsters & Side Frames:	
Uncut	Base
Cut	+ 3.00
21. Angles, Splice Bars & Tie Plates	+ 5.00
22. Solid Steel Axles	+12.00
23. Steel Wheels, No. 3, oversize	Base
24. Steel Wheels, No. 3	+ 5.00
25. Spring Steel	+ 5.00
26. Couplers & Knuckles	+ 5.00
27. Wrought Iron	+ 8.00
28. Fireboxes	- 8.00
29. Boilers	- 6.00
30. No. 2 Sheet Scrap	-13.00
31. Carsides, Doors, Car Ends, cut apart	- 6.00
32. Unassorted Iron & Steel	- 6.00
33. Unprepared scrap, not suitable for hydraulic compression	- 8.00

## Preparation Charges

Celling fees per gross ton which may be charged for intranet preparation of any grade of steel scrap of dealer or industrial origin, authorized by OPS are:

- (1) For preparing into Grades No. 3, No. 4 or No. 2, \$8.
- (2) For hydraulically compressing Grade No. 1, \$6 per ton; Grade No. 5, \$8.
- (3) For crushing Grade No. 6, \$3.
- (4) For preparing into: Grade No. 25, \$6.
- (5) Grade No. 19, \$6.
- (6) Grades No. 12, No. 13, No. 14, No. 16, or No. 20, \$10.
- (7) Grade No. 17 or No. 21, \$11.
- (8) Grade No. 18, \$12.
- (9) For hydraulically compressing Grade No. 15, \$8.
- (10) For preparing into Grade No. 28, \$10.

Celling fees per gross ton which may be charged for intranet preparation of any grade of steel scrap of railroad origin shall be:

- (1) For preparing into Grade No. 1 and Grade No. 2, \$8.
- (2) For hydraulically compressing Grade No. 13, \$6.
- (3) Grade No. 16, \$4.
- (4) Grade No. 17, \$5.
- (5) Grade No. 18, \$7.
- (6) Grade No. 21, \$4.
- (7) Grade No. 23, \$4.

Celling fees per gross ton which may be charged for intranet preparation of cast iron are limited to:

- (1) For preparing Grade No. 8 into Grade No. 7, \$9.
- (2) For preparing Grade No. 3 into Grade No. 11, \$7.
- (3) For preparing Grade No. 3 into Grade No. 1, \$4.

## CAST IRON SCRAP

Celling price per gross ton for following grades shall be f.o.b. shipping point:

Cast Iron:	
1. No. 1 (Cupola)	\$49.00
2. No. 2 (Charging Box)	47.00
3. No. 3 (Hvy. Breakable)	45.00
4. No. 4 (Burnt Cast)	41.00
5. Cast Iron Brake Shoes	41.00
6. Stove Plate	46.00
7. Clean Auto Cast	52.00
8. Unstripped Motor Blocks	43.00
9. Wheels, No. 1	47.00
10. Malleable	55.00
11. Drop broken machinery	52.00

## OPEN MARKET

(Delivered prices include broker's commission.)

<b>Birmingham</b> (Delivered)	
Shoveling turnings	\$30.00-32.00
Cast iron borings	30.00-32.00
No. 1 cupola cast	47.00-48.00
Stove plate	42.00
Charging box cast	39.00-40.00
Heavy breakable	36.00-37.00
Drop broken machinery	42.00-43.00
Unstripped motor blocks	35.00-36.00
<b>Boston</b> (F.o.b. shipping point)	
No. 1 cupola cast	41.00
Heavy breakable	36.00
Stove plate	34.00-35.00
Unstripped motor blocks	30.00
<b>Buffalo</b> (Delivered)	
No. 1 heavy melting	43.00
No. 2 heavy melting	43.00
No. 1 bundles	44.00
No. 1 busheling	44.00
No. 2 bundles	43.00
Machine shop turnings	34.00
Mixed borings, turnings	38.00
Cast iron borings	38.00
Short shoveling turnings	38.00
No. 1 cupola cast	45.50-46.50
No. 1 machinery cast	49.00-50.00

<b>Chicago</b> (Delivered)	
No. 2 heavy melting	42.50
No. 2 bundles	42.50
Machine shop turnings	30.50-32.50
Mixed borings, turnings	34.50-36.50
Shoveling turnings	34.50-36.50
Cast iron borings	34.50-36.50
No. 1 cupola cast	44.00-46.00
Charging box cast	41.00-43.00
Heavy breakable	38.00-40.00
Burnt cast	37.00-39.00
Cast iron brake shoes	39.00-41.00
Stove plate	41.00-43.00
Clean auto cast	46.00-48.00
Unstripped motor blocks	35.00-37.00
Malleable	46.00-48.00
Drop broken machinery	47.00-49.00

<b>Cleveland</b> (Delivered)	
No. 1 heavy melting	43.00
No. 2 heavy melting	43.00
No. 1 bundles	44.00
No. 2 bundles	43.00
Machine shop turnings	34.00
Mixed borings, turnings	38.00
Shoveling turnings	38.00
Cast iron borings	38.00
(F.o.b. shipping point)	
No. 1 cupola	49.00
Charging box cast	47.00
Burnt cast	41.00
Stove plate	46.00
Clean auto cast	52.00
Unstripped motor blocks	43.00
Malleable	55.00
Drop broken machinery	52.00

<b>Detroit</b> (F.o.b. shipping point)	
No. 1 cupola cast	47.00-48.00
Heavy breakable	43.00-44.00
Clean auto cast	49.00-50.00
Unstripped motor blocks	40.00-41.00
Drop broken machinery	50.00-52.00
Charging box cast	44.00-45.00
<b>Los Angeles</b> (Delivered)	
No. 1 heavy melting	34.00
No. 2 heavy melting	31.00
No. 1 bundles	35.00
No. 2 bundles	29.00
No. 1 cupola cast	49.00
Machine shop turnings	14.00
<b>New York</b> (Brokers' buying prices)	
No. 2 heavy melting	35.99
Mixed borings, turnings	29.99
Machine shop turnings	25.99
Cupola cast	41.00-42.00
Unstripped motor blocks	32.00-33.00
<b>Philadelphia</b>	
No. 1 heavy melting	41.50†
No. 2 heavy melting	41.50†
No. 1 bundles	42.50†
No. 2 bundles	41.50†
No. 1 busheling	42.50†
Mixed borings, turnings	36.50†
Machine shop turnings	32.50†
Short shoveling turnings	36.50†
No. 1 cupola cast	46.00-49.00†
Unstripped motor blocks	40.00†
Heavy breakable	45.00†
Machinery cast	52.00†
Charging box cast	47.00†

† Ceiling price.	‡ Nominal.
§ Shipping point.	†† Delivered.
<b>Pittsburgh</b> (Delivered)	
No. 2 heavy melting	44.00†
No. 1 bundles	45.00†
No. 2 bundles	44.00†
Machine shop turnings	35.00†
Shovel turnings	39.00†
No. 1 cupola cast	48.50
Heavy breakable	45.00
<b>San Francisco</b> (Delivered)	
No. 2 heavy melting	29.00
Machine shop turnings	14.00
No. 2 bundles	29.00
No. 1 cupola cast	44.00
<b>Seattle</b> (F.o.b. shipping point)	
No. 1 bundles	30.00
No. 1 cupola cast	41.00
Heavy breakable	36.00-38.00
Unstripped motor blocks	31.00
<b>St. Louis</b> (Delivered)	
No. 1 cupola	48.00
Unstripped motor blocks	37.00
<b>Youngstown</b> (Delivered)	
No. 2 heavy melting	43.00
No. 2 bundles	43.00
Machine shop turnings	34.00

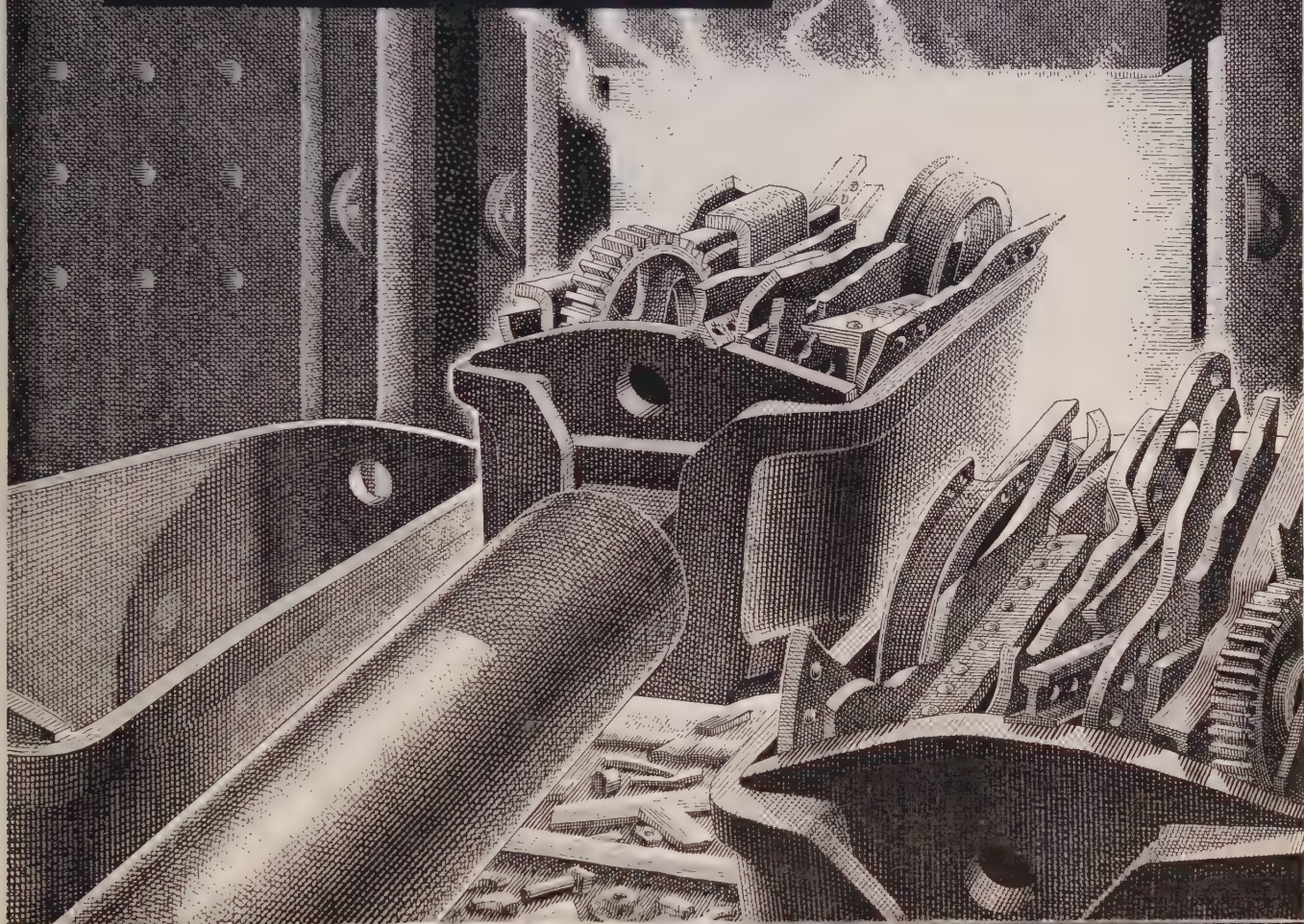
HAMILTON, ONT.  
(Delivered Prices)

Heavy Melt	\$35.50
No. 1 Bundles	35.50
No. 2 Bundles	35.50
Mechanical Bundles	31.50
Mixed Steel Scrap	32.50
Mixed Borings, Turnings	32.50
Rails, Remelting	35.50
Rails, Rerolling	44.80
Busheling	30.00
Busheling new factory:	
Prep'd	33.50
Unprep'd	31.50
Short Steel Turnings	32.50
Cast Iron Grades†	
No. 1 Machinery Cast	50.00
† F.o.b., shipping point.	



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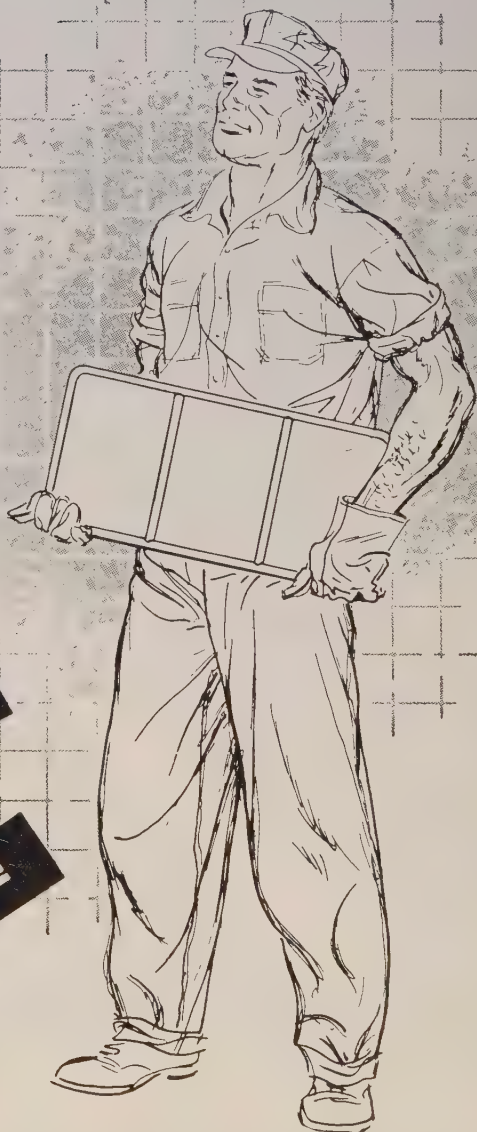
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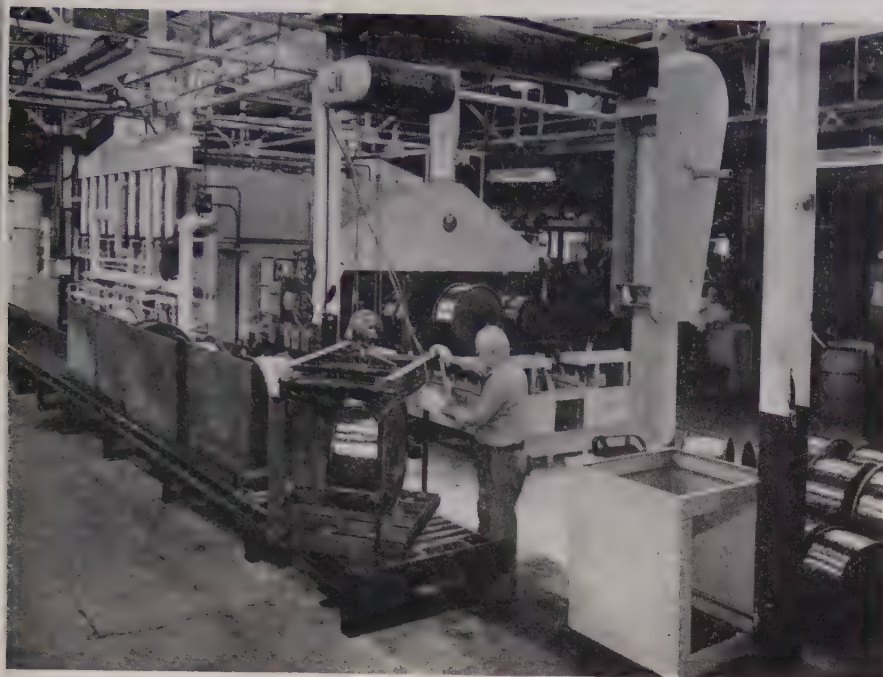
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## Anaconda Adds a New Annealer

This \$82,000 annealer, newly installed by engineers of Anaconda Wire & Cable Co., at their Anderson, Ind., mill, requires only one hour to heat 6250 pounds of copper to a temperature of 900 degrees. The machine is radiant-tube heated and gas-fired. Copper is loaded on bulkhead-type trays and fed into the annealer by pusher control. Its operation needs the services of a single worker, as above

lie in letting private traders worry about it. *Cadmium* also is easing pricewise; St. Joseph Lead Co., dropped the price of cadmium stocks, delivered, 25 per cent to \$1.50 to meet foreign competition. Other sellers held firm temporarily at \$2.00. *Mercury* is currently in tight supply though; price now is \$212 a flask and higher.

## Copper, Brass Sales Up . . .

Copper and brass warehouses concur with prognostications of good business ahead. Latest survey by the Copper and Brass Warehouse Association shows sales increases in nearly all lines and better stock balance. Deliveries from suppliers are about a week faster, averaging 59 days in October. Sales shifted geographically, moving from fair to good in the East and Midwest, remaining fair in New England, and going from good to fair in the South and West. Sales of all products were either improved or showed no change.

In particularly short supply, listed in order of scarcity, are: Copper wire, copper rod and bar, brass sheet, brass tubing, copper sheet and brass rod. Bronze rod and brass wire eased considerably in the month. Present stock inventory compared with permitted inventory under M-82 for copper wire moved up 17 points to 52 per cent, while copper rod and bar gained 16 points to 80 per cent, and copper tube improved by 14 points to 81 per cent.

Only products losing ground cent. Only products losing ground were alloy sheet and strip (down 14 points to 80 per cent) and alloy rod and bar (down 9 points to 85 per cent). Alloy tube and copper sheet improved 2 points each to 75 and 82 per cent, respectively; copper strip showed no change at 85 per cent.

**Demand holds strong on metals in approximate balance and presses hard on the scarce ones. Markets may rise for non-ferrous items that slumped this fall**

THE YEAR ahead, from metalworking's standpoint, will be an exceptionally good one. Here are a few reasons why industry can be optimistic: Inflation's threats are subsiding, materials will soon be readily available, controls on prices will be abandoned, demand is strong for civilian goods, defense work holds high, labor troubles won't be nearly so prevalent next year and confidence in the incoming administration is firm.

Manifestation of this optimism is the run on metals needed by industry. Demand holds strong for products in approximate balance, is insistent for those now scarce, even promises to pick up in those that have slumped this fall.

**Itemized—Aluminum** and *copper* are no longer neck-and-neck supply-wise. Controls on copper and its alloys should go off fully three months before aluminum. Lifting the lid on self-authorization restrictions for construction shows government thinking on relative scarcity of CMP metals. Commercial, apartment and entertainment projects will be able to get

more *steel* and copper Jan. 1 instead of May 1 as planned, but no date was set for relaxing restrictions on aluminum for this purpose.

*Lead* and *zinc*, plunged into the buyers' market quickly, have little more floundering ahead. Though most December purchases were made in last month's buying orgy, lead has gained strength pricewise. Some observers even think an advance in price possible. Zinc is suffering the consequences of overproduction more than underconsumption, a trend that has been compensated for already, perhaps too much. After a rough January following free trading in London, zinc should reach stabilization pricewise.

*Nickel* use may be eased slightly next year, but no major improvement can be seen until defense needs taper. *Tin* is plentiful, should be decontrolled soon despite official talk in Washington. At the bottom of the trouble is the Bolivian situation, where RFC can be criticized for signing a long-term contract or for not doing so. Solution will probably

## STEEL'S Metal Price Averages for Nov., 1952

(Cents per pound)

Electrolytic Copper, del.	
Conn. . . . .	24.500
Lead, St. Louis . . . . .	13.965
Prime Western Zinc,	
E. St. Louis . . . . .	12.500
Straits Tin, New York . . . . .	121.50
Primary Aluminum	
Ingots, del. . . . .	20.000
Antimony, f.o.b. Laredo,	
Tex. . . . .	34.688
Nickel, f.o.b. refinery . . . . .	56.500
Silver, New York . . . . .	83.250



## NONFERROUS METALS

(Cents per pound, carlots, except as otherwise noted)

## Primary Metals

**Copper:** Electrolytic 24.50c, Conn. Valley; Lake 24.62½c, delivered.**Brass Ingots:** 85-5-5-5 (No. 115) 27.25c, 88-10-2 (No. 215) 40.00c; 80-10-10 (No. 305) 33.00c; No. 1 yellow (No. 405) 23.25c.**Zinc:** Prime western 12.50c; brass special 12.75c; intermediate 13.00c, East St. Louis; high grade 13.85c, delivered.**Lead:** Common 13.80c; chemical 13.90c; cor-rod, 13.90c, St. Louis.**Primary Aluminum:** 99% plus, ingots 20.00c, pigs 19.00c. Base prices for 10,000 lb and over. Freight allowed on 500 lb or more but not in excess of rate applicable on 30,000 lb c.l. orders.**Secondary Aluminum:** Piston alloys 20.50c; No. 12 foundry alloy (No. 2 grade) 19.50c; steel deoxidizing grades, notch bars, granulated or shot: Grade 1, 18.80c; grade 2, 18.60c; grade 3, 18.40c; grade 4, 18.20c.**Magnesium:** Commercially pure (99.8%) stand-ard ingots, 10,000 lb and over 24.50c, f.o.b. Freeport, Tex.**Tin:** Grade A, prompt 121.50c.**Antimony:** American 99-99.8% and over but not meeting specifications below 34.50c; 99.8% and over (arsenic 0.05% max., other impuri-ties 0.1% max.) 35.00c; f.o.b. Laredo, Tex., for bulk shipments.**Nickel:** Electrolytic cathodes, 99.9%, base sizes at refinery, unpacked, 56.50c; 25-lb pigs, 59.15c; "XX" nickel shot, 60.15c; "E" nickel shot or ingots, for addition to cast iron, 56.50c. Prices include import duty.**Mercury:** Open market, spot, New York, \$210-\$212, nominal, per 76-lb flask.**Beryllium-Copper:** 3.75-4.25% Be, \$1.595 per lb of alloy, f.o.b. Reading, Pa.**Cadmium:** "Regular" straight or flat forms, \$1.50-\$2 del; special or patented shapes \$2.15.**Cobalt:** 97.99%, \$2.40 per lb for 500 lb (kegs); \$2.42 per lb for 100 lb (case); \$2.47 per lb under 100 lb.**Gold:** U. S. Treasury, \$35 per ounce.**Silver:** Open market, New York 83.25c per oz.**Platinum:** \$90-\$93 per ounce from refineries.**Palladium:** \$23-\$24 per troy ounce.**Iridium:** \$175-\$185 per troy ounce.**Titanium** (sponge form): \$5 per pound.

## Rolled, Drawn, Extruded Products

## COPPER AND BRASS

(Ceiling prices, cents per pound, f.o.b. mill, effective July 1, 1952)

**Sheet:** Copper 45.52; yellow brass 40.17; com-mercial bronze, 95% 45.15; 90% 44.38; red brass, 85% 43.10; 80% 42.34; best quality, 41.35; nickel silver, 18%, 55.08; phosphor-bronze grade A, 5%, 64.71.**Rod:** Copper, hot-rolled 41.37; cold-drawn 42.62; yellow brass free cutting, 33.85; com-mercial bronze 95% 44.84; 90% 44.07; red brass 85%, 42.79; 80%, 42.03.**Seamless Tubing:** Copper 45.56; yellow brass 43.18; commercial bronze, 90%, 47.04; red brass, 85%, 46.01.**Wire:** Yellow brass 40.46; commercial bronze, 95%, 45.44; 90%, 44.67; red brass, 85%, 43.39; 80%, 42.63; best quality brass, 41.64.

(Base prices, effective July 1, 1952)

**Copper Wire:** Bare, soft, f.o.b. eastern mills, 100,000 lb. lots, 32.795; 30,000 lb lots, 32.92; l.c.l., 33.42. Weatherproof, 100,000 lb, 33.60; 30,000 lb, 33.85c; l.c.l., 34.35. Magnet wire del., 15,000 lb or more, 38.75; l.c.l., 39.50.

## ALUMINUM

(30,000 lb base; freight allowed on 500 lb or more, but not in excess of rate applicable on 30,000 lb c.l. orders. Effective Aug. 4, 1952.)  
**Sheets and Circles:** 2s and 3s mill finish c.l.

Thickness Range Inches	Widths or Diameters, In., Inc.	Flat Sheet Base*	Coiled Sheet Base	Coiled Sheet Circle† Base
0.249-0.136	12-48	31.6	...	...
0.135-0.096	12-48	32.1	...	...
0.095-0.077	12-48	32.8	30.6	34.9
0.076-0.061	12-48	33.4	30.8	35.1
0.060-0.048	12-48	33.7	31.0	35.4
0.047-0.038	12-48	34.1	31.3	35.7
0.037-0.030	12-48	34.5	31.7	36.3
0.029-0.024	12-48	35.1	32.0	36.8
0.023-0.019	12-36	35.7	32.7	37.5
0.018-0.017	12-36	36.4	33.3	38.4
0.016-0.015	12-36	37.3	34.0	39.5
0.014	12-24	38.3	35.0	40.8
0.013-0.012	12-24	39.3	35.7	41.7
0.011	12-24	40.3	36.8	43.3
0.010-0.0095	12-24	41.4	37.9	44.8
0.009-0.0085	12-24	42.6	39.1	46.6
0.008-0.0075	12-24	44.0	40.3	48.4
0.007	12-18	45.5	41.7	50.6
0.006	12-18	47.0	43.1	55.4

\* Lengths 72 to 180 inches. † Maximum di-  
ameter, 26 inches.**Screw Machine Stock:** 5000 lb and over.

Dia. (in.) or distance across flats	Round— R317-T4	Hexagonal— R-317-T4	17S-T4
0.125	54.6	...	...
0.156-0.0188	46.2	...	...
0.219-0.313	43.6	...	...
0.375	42.0	48.3	50.4
0.406	42.0	...	...
0.438	42.0	48.3	50.4
0.469	42.0	...	...
0.500	42.0	48.3	50.4
0.531	42.0	...	...
0.563	42.0	...	47.3
0.594	42.0	...	...
0.625	42.0	45.7	47.3
0.688	42.0	...	47.3
0.750-1.000	41.0	43.1	44.6
1.063	41.0	...	43.1
1.125-1.500	39.4	41.5	43.1
1.563	38.9	...	...
1.625	38.3	...	41.5
1.688-2.000	38.3	...	...

## LEAD

(Prices to jobbers f.o.b. Buffalo, Cleveland, Pittsburgh)  
**Sheets:** Full rolls, 140 sq ft or more \$19.00 per cwt; add 50c cwt 100 sq ft to 140 sq ft. Pipe: Full coils \$19.00 per cwt. Traps and bends: List prices plus 43%.

## ZINC

**Sheets** 23.00c, f.o.b. mill 36,000 lb and over. Ribbon zinc in coils, 19.50-20.50c, f.o.b. mill, 36,000 lb and over. Plates, not over 12-in., 20.75-21.75c; over 12-in., 20.75-21.75c.

## "A" NICKEL

(Base prices f.o.b. mill)

**Sheets,** cold-rolled, 77.00c. Strip, cold-rolled, 83.00c. Rods and shapes, 73.00c. Plates, 75.00c. Seamless tubes, 106.00c.

## MONEL

(Base prices f.o.b. mill)

**Sheets,** cold-rolled 60.50c. Strip, cold-rolled 63.50c. Rods and shapes, 58.50c. Plates, 59.50c. Seamless tubes, 93.50c. Shot and blocks, 53.50c.

## MAGNESIUM

**Extruded Rounds** 12 in. long, 1.31 in. in di-  
ameter, less than 25 lb, 55.00-62.00c; 25 to  
99 lb, 45.00-52.00c; 100 lb to 5000 lb, 41.00c.

## TITANIUM

(Prices per lb 10,000 lb and over, f.o.b. mill)  
**Sheets,** \$15; sheared mill plate, \$12; strip,  
\$15; wire, \$10; forgings, \$6; hot-rolled and  
forged bars, \$6.

## Plating Materials

**Chromic Acid:** 99.9% flakes, f.o.b. Philadel-  
phia, carloads 27.00c; 5 tons and over 27.50c;  
1 to 5 tons, 28.00c; less than 1 ton 28.50c.**Copper Anodes:** Base 2000 to 5000 lb; f.o.b.  
shipping point, freight allowed: Flat, rolled,  
38.34c; oval 37.84c.**Nickel Anodes:** Rolled oval, carbonized, car-  
loads, 74.50c; 10,000 to 30,000 lb 75.50c; 3000  
to 10,000 lb 76.50c; 500 to 3000 lb 77.50c;  
100 to 500 lb, 79.50c; under 100 lb, 82.50c;  
f.o.b. Cleveland.**Nickel Chloride:** 36.50c in 100 lb bags; 34.50c  
in lots of 300 lb through 10,000 lb; 34.00c  
over 10,000 lb, f.o.b. Cleveland, freight al-  
lowed on 300 lb or more.**Sodium Stannate:** 25 lb cans only, less than  
100 lb to consumers 86.7c; 100 or 350 lb  
drums only, 100 to 600 lb 71.60c; 700 to 1900  
lb, 69c; 2000 to 9900 lb, 67.3c. Freight al-  
lowed east of Mississippi and north of Ohio  
and Potomac rivers.**Tin Anodes:** Bar, 1000 lb and over, \$1.42; 500  
to 999 lb, \$1.425; 200 to 499 lb, \$1.43; less  
than 200 lb, \$1.445. Freight allowed east of  
Mississippi and north of Ohio and Potomac.**Zinc Cyanide:** 100 lb drums, less than 10  
drums 54.30c, 10 or more drums, 52.30c, f.o.b.  
Niagara Falls, N. Y.**Stannous Sulphate:** 100 lb kegs or 400 lb bbl,  
less than 2000 lb \$1.11; more than 2000 lb,  
\$1.09. Freight allowed east of Mississippi and  
north of Ohio and Potomac rivers.**Stannous Chloride (Anhydrous):** In 400 lb bbl,  
98.5c; 100 lb kegs 99.5c. Freight allowed.

## Scrap Metals

## Brass Mill Allowances

Ceiling prices in cents per pound for less than  
20,000 lb, f.o.b. shipping point effective June  
26, 1951.

	Clean Heavy	Rod Ends	Clean Turnings
Copper	21.50	21.50	20.75
Yellow Brass	19.125	18.875	17.875

	Commercial Bronze
95%	20.50 20.25 19.75
90%	20.50 20.25 19.75

	Red Brass
85%	20.25 20.00 19.375
80%	20.125 19.875 19.375

	Muntz metal	Nickel silver, 10%	Phos. Bronze, 5%
	18.125 17.875 17.375	21.50 21.25 20.75	25.25 25.00 24.00

## Copper Scrap Ceiling Prices

(Base prices, cents per pound, less than  
40,000 lb f.o.b. point of shipment)Group I: No. 1 copper 19.25; No. 2 copper  
wire and mixed heavy 17.75; light copper  
16.50; No. 1 borings 19.25; No. 2 borings  
17.75; refinery brass, 17.00 per lb of dry Cu  
content for 50 to 60 per cent material and  
17.25 per lb for over 60 per cent material.  
Group II: No. 1 soft red brass solids 18.50;  
No. 1 composition borings 19.25 per lb of Cu  
content plus 63 cents per lb of tin content;  
mixed brass borings 19.25 per pound of Cu  
content plus 60 cents per lb of tin content;  
unlined red car boxes 18.25; lined red car  
boxes 17.25; cocks and faucets 16.00; mixed  
brass screens 16.00; zincy bronze solids and  
borings 16.25.

## Aluminum Scrap Ceiling Prices

(Cents per pound, f.o.b. point of shipment,  
less than 5000 lb)Segregated plant scrap; 2s solids, copper free,  
10.50; high grade borings and turnings, 8.50;  
No. 12 piston borings and turnings, 7.50.  
Mixed plant scrap: Copper-free solids, 10.00;  
dual type, 9.00. Obsolete scrap: Pure old  
cable, 10.00; sheet and sheet utensils, 7.25; old  
castings and forgings, 7.75; clean pistons, free  
of struts, 7.75; pistons with struts, 5.75.

## DEALERS' BUYING PRICES

(Cents per pound, New York, in ton lots)

**Lead:** Heavy 10.75-11.25; battery plates 5.90-  
6.15; linotype and stereotype 12.50-13.00; elec-  
trotype 10.75-11.00; mixed babbitt 13.75-14.00.  
**Zinc:** Old zinc, 5.50-6.00; new die cast scrap,  
5.50-6.00; old die cast scrap, 4.00-4.50.

## DAILY PRICE RECORD

1952	Copper	Lead	Zinc	Tin	Alu- minum	An- timony	Nickel	Silver
Dec. 1-4	24.50	13.80	12.50	121.50	20.00	34.50	56.50	83.25
Nov. 24-29	24.50	13.80	12.50	121.50	20.00	34.50	56.50	83.25
Nov. 20-22	24.50	14.05	12.50	121.50	20.00	34.50	56.50	83.25
Nov. 12-19	24.50	14.30	12.50	121.50	20.00	34.50	56.50	83.25
Nov. 11	24.50	14.00	12.50	121.50	20.00	34.50	56.50	83.25
Nov. 3-10	24.50	13.80	12.50	121.50	20.00	34.50	56.50	83.25
Nov. 1	24.50	13.30	12.50	121.50	20.00	39.00	56.50	83.25
Nov. Avg.	24.50	13.965	12.50	121.50	20.00	34.688	56.50	83.25
Oct. Avg.	24.50	14.226	13.259	121.50	20.00	39.00	56.50	83.25
Sept. Avg.	24.50	15.80	13.99	121.50	20.00	39.00	56.50	83.25
Aug. Avg.	24.50	15.80	14.067	121.50	19.923	39.00	56.50	83.25
July Avg.	24.50	15.80	15.00	121.50	19.00	39.00	56.50	82.885
June Avg.	24.50	15.06	15.74	121.50	19.00	39.00	56.50	82.75
Nov. 1951 Avg.	24.50	18.80	19.50	103.00	19.00	44.56	56.50	88.00
Nov. 1947 Avg.	21.50	14.825	10.50	80.00	15.00	33.00	35.00	74.625

NOTE: Copper: Electrolytic, del. Conn. Valley; Lead, common grade, del. St. Louis; Zinc, prime  
western, E. St. Louis; Tin, Straits, del. New York; Aluminum primary ingots, 99%, del.; Antimony,  
bulk, f.o.b. Laredo, Tex.; Nickel, electrolytic cathodes, 99.9%, base sizes at refinery unpacked.  
Silver, open market, New York. Prices, cents per pound; except silver, cents per ounce.



## Plates . . .

Plate Prices, Page 165

**Philadelphia**—Eastern plate mills are booked solidly throughout first quarter on sheared and universal plate for non-defense, and have set-asides well covered for direct defense. One producer only recently opened books for March on commercial work and at the moment is proceeding to enter orders on a highly selective basis.

**Boston**—To the extent more light narrow plates are available and heavier stock against higher ratings is delivered closer to schedule, the supply situation is improved. There are tight spots, but tank shops and fabricators taking one-half inch and under, are better off.

**New York**—Virtually all sheared plate producers are booked up throughout first quarter on non-defense tonnage, with only some space reserved for high priority work.

**Pittsburgh**—Books are filled through first quarter. Producers express the hope controls will continue through second quarter. Several inquiries have been received from middle-west users.

## Sheets, Strip . . .

Sheet and Strip Prices, Page 165 &amp; 166

**Boston**—Scheduling of second quarter steel products requiring longer lead-time, including electrical sheets, has started. Distribution is preliminary and not indicative of order volume to come. But more flat-rolled tonnage is likely, nickel stainless expected. Noteworthy decline in demand is doubtful, despite predictions of some mild reaction in consumer durable goods by June. There are spot openings in narrow cold strip schedules for first quarter.

**New York**—Inquiry is strong for hot and cold-rolled sheets; also galvanized. Some sellers anticipate a temporary lull later in the month due to the holidays and inventory taking. Some sheet sellers will open second quarter books late this month on hot and cold-rolled sheets.

**Philadelphia**—Hot and cold-rolled sheet demand shows little letup. Sellers are confronted with more inquiry than they can handle. Increased galvanizing facilities at one eastern mill is making it possible for this producer to supply regular customers with a little more coated tonnage.

**Pittsburgh**—Some sheet and strip users are still seeking to place their fourth quarter tickets. Decontrol is not expected to provide much relief. Books for first quarter are booked full, and there is little likelihood of any additional space during April.

**Cleveland**—Carryover tonnage into first quarter will be heavy so that openings in rolling schedules for the period will be extremely limited. Except for high-rated military requirements there is little chance for manufacturers obtaining anything beyond their allotments for the period. Pressure for shipments continues strong and while some letdown in manufacturing operations is expected over the yearend holidays, no particular slackening in shipments is anticipated by the mills.

**Chicago**—Indicative of sustained demand for sheets is the fact some consumers would arrange conversion ton-

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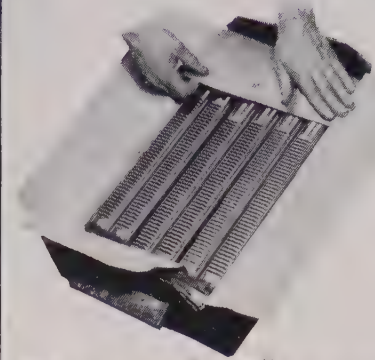
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nage for second quarter were mills willing to enter contracts. Farm equipment needs constitute the only weak spot in demand.

**St. Louis**—Heavy pressure spots are showing up in demand for cold-rolled sheets although most consumers have fair stocks. Mill backlogs will carry over into first quarter and possibly into second.

## Semifinished Steel . . .

Semifinished Prices, Page 165

**Los Angeles**—W. J. McClung, vice president, Bethlehem Pacific Coast Steel Corp., says steel production in the 11 western states has reached 6.2 million ingot tons yearly but that additional expansion will be needed to keep pace with rapidly growing western population. Meanwhile, Hiland G. Batcheller, chairman, Allegheny-Ludlum Steel Corp., speaking here, said the steel industry faces the necessity of increasing annual capacity 1 million tons for each 1 million increase in population. Using Mr. Batcheller's ratio, California steel mills should be producing 10,700,000 tons of ingots yearly by 1965.

## Reinforcing Bars . . .

Reinforcing Bar Prices, Page 165

**Seattle**—Rolling mill operations are down slightly due to a 10 per cent cut in power. Preparations are being made for further reductions. Considerable reinforcing bar tonnage is pending.

## Structural Shapes . . .

Structural Shape Prices, Page 165

**New York**—Structural inquiry is improved, mostly public work. Six bridges for the New York state thruway, involving 3500 tons, came up for bidding last week, and except for the 60,000 to 65,000 ton Hudson river bridge, Rockland county, it appears most of the thruway work east of Buffalo is drawing to a close.

October structural steel bookings amounted to 184,711 tons. This compares with 207,695 for September and 252,849 for August. Total for the first ten months was 2,123,636 tons, against 2,536,172 in the like period last year.

October shipments were 258,535 tons, against 227,595 for September and 226,277 for August. Total shipments for the first ten months amounted to 2,211,237 tons, against 2,280,019 in the first ten months of 1951.

Backlogs as of Nov. 1 amounted to 2,266,875 tons, against 2,640,851 tons a year ago and 1,364,772 tons, average for 1947 to 1950, inclusive.

**Boston**—Contractors are sharpening pencils figuring costs for heavy construction. Power plant and industrial building is more competitive when design is included. Fabricating shops are reluctant to pay premium prices for plain structurals. Several are filling in with foreign shapes near 6.00c net, dock.

**Philadelphia**—Structural market pattern shows little change. Inquiry is spotty and confined largely to public work. Easing of governmental restrictions would see a spurt in various lines of commercial activity.

**Los Angeles**—School construction

program of \$185 million will sustain demand for structural material. Wide flange beams are in tighter supply.

**Seattle**—Two structural jobs involving 2700 tons for a Washington state bridge and construction at the Hanford works were placed last week. Additional tonnages are required for the Hanford project.

Major bridge construction projects are under consideration in Washington state, the most important being a proposed \$82 million floating toll span across Puget Sound. A second project is a duplicate interstate bridge across the Columbia river at Vancouver, Wash. A third proposal is a bridge over the Hood canal, an arm of Puget Sound.

## Wire . . .

Wire Prices, Page 167

**Washington**—Producers of merchant wire products last week were authorized by Office of Price Stabilization to calculate ceiling price increases on the basis of columnar price lists rather than the dollars-and-cents figures previously authorized.

Use of the columnar basis for pricing will not result in any substantial change in the level of ceiling prices for these products. The merchant wire products covered by Amendment 2 to Supplementary Regulation 100, Revision 1, effective Dec. 6, are: stock wire nails, stock staples, woven fence, welded fence, wire netting, fence posts, coil and loop wire bale ties, barbed and twisted wire, and wire hoops.

Historically producers have indicated their prices by means of a price schedule consisting of numbered columns. Each column represents an increase of approximately \$1 per ton converted to the increase for the customary unit of sale, such as a keg of nails. Thus, price changes, either up or down, are indicated by a change in the number of the applicable column which gives the new price in dollars-and-cents per unit of sale.

**Boston**—First quarter allotments, with carryover, will meet heading wire requirements with most screw manufacturers. Few supplemental allotments will be taken up. Demand is heavier in coarser sizes. New volume with screw producers is fair, and automobile assemblers are pressing for shipment.

## Steel Bars . . .

Bar Prices, Page 165

**Cleveland**—Tight supply conditions in hot-rolled and cold-finished carbon bars is expected to continue well into 1953, especially in the larger sizes. While the smaller sizes are more readily available, manufacturers are having a difficult time getting desired sizes. No definite improvement in conditions is anticipated so long as the defense program continues to get first call on mill output. Further stretchout of the defense program, being suggested in some quarters, would ease the situation much sooner than now seems likely.

**Chicago**—So strong is pressure for bars this quarter and first quarter next year, more consumers are co-operating with producers in determining to what extent commercial

**ATLANTA, Ga.**, Alpine 4885  
Morrison-Drabner Steel Co., Inc.

**BALTIMORE, Md.**, Peabody 7300  
Hill-Chase Steel Company of Maryland  
**Asheboro, N.C.**: Phone 8849  
**Richmond, Va.**: Phone 7-4573

**BEAUMONT, Tex.**, Phone 4-2641  
Standard Brass & Mfg. Co.

**CHICAGO METROPOLITAN AREA**  
Korhmel Steel & Aluminum Company  
**Evanston, Ill.**: Ambassador 2-6700

**CINCINNATI, Ohio**, Wobash 4480, 4481  
Morrison-Drabner Steel Co., Inc.

**CLEVELAND, Ohio**  
Nottingham Steel Company  
Atlantic 1-5100  
Copper & Brass Sales, Inc.  
Endicott 1-6757

**DALLAS, Tex.**  
Delta Metals, Inc.  
Hunter 7446  
Earle M. Jorgensen Co.  
Riverside 1761

**DAVENPORT, Iowa**, Phone 3-1895  
Nichols Wire & Aluminum Co.

**DETROIT, Mich.**  
Copper & Brass Sales, Inc.  
Lorain 7-3380

**HONOLULU, T. H.**, Phone 5-2541  
Permanente Cement Co.

**HOUSTON, Tex.**  
Standard Brass & Mfg. Co.  
Preston 1123  
Earle M. Jorgensen Co.  
Orchard 1621

**INDIANAPOLIS, Ind.**  
F. H. Langsenkamp Company  
Imperial 4321  
Korhmel Steel & Aluminum Company  
Franklin 5361

**KANSAS CITY, Mo.**, Victor 1041  
Industrial Metals, Inc.

**LOS ANGELES, Calif.**  
Eureka Metal Supply Company  
Mutual 7286  
Earle M. Jorgensen Co.  
Lucas 0281  
Reliance Steel Company  
Adams 3-1192

**MILWAUKEE, Wis.**, Evergreen 4-6000  
Korhmel Steel & Aluminum Corp.  
of Wisconsin

**MINNEAPOLIS, Minn.**  
Korhmel Steel & Aluminum Company  
Gladstone 5943, Prior 4030

**NEW ORLEANS, La.**  
Orleans Steel Products Co., Inc.  
Raymond 2116  
Standard Brass & Mfg. Co.  
Aud. 1353

**NEW YORK METROPOLITAN AREA**  
A. R. Purdy Co., Inc.  
Lyndhurst: Rutherford 2-8100  
**New York: Chelsea** 3-4455  
**Newark: Humboldt** 2-5566

**OAKLAND, Calif.**  
Gilmore Steel & Supply Company  
Glencourt 1-1680  
Earle M. Jorgensen Co.  
Higate 4-2030

**OMAHA, Nebr.**, Atlantic 1830  
Gate City Steel Works

**ORLANDO, Fla.**, Phone 7124  
Profile Supply Company

**PHILADELPHIA, Penna.**, Delaware 6-5400  
Hill-Chase & Company, Inc.  
**Allentown: Allentown** 28077  
**York: York** 5790

**PHOENIX, Ariz.**, Phone 8-5331  
Arizona Hardware Co., Inc.

**PITTSBURGH, Penna.**, Hemlock 1-5803  
Follansbee Metal Warehouses

**PORT ARTHUR, Tex.**, Phone 5-9377  
Standard Brass & Mfg. Co.

**PORTLAND, Ore.**, Tuxedo 5201  
Eagle Metals Inc. of Oregon

**SAN FRANCISCO, Calif.**, Klondike 2-0511  
Gilmore Steel & Supply Company

**SEATTLE, Wash.**, Lander 9974  
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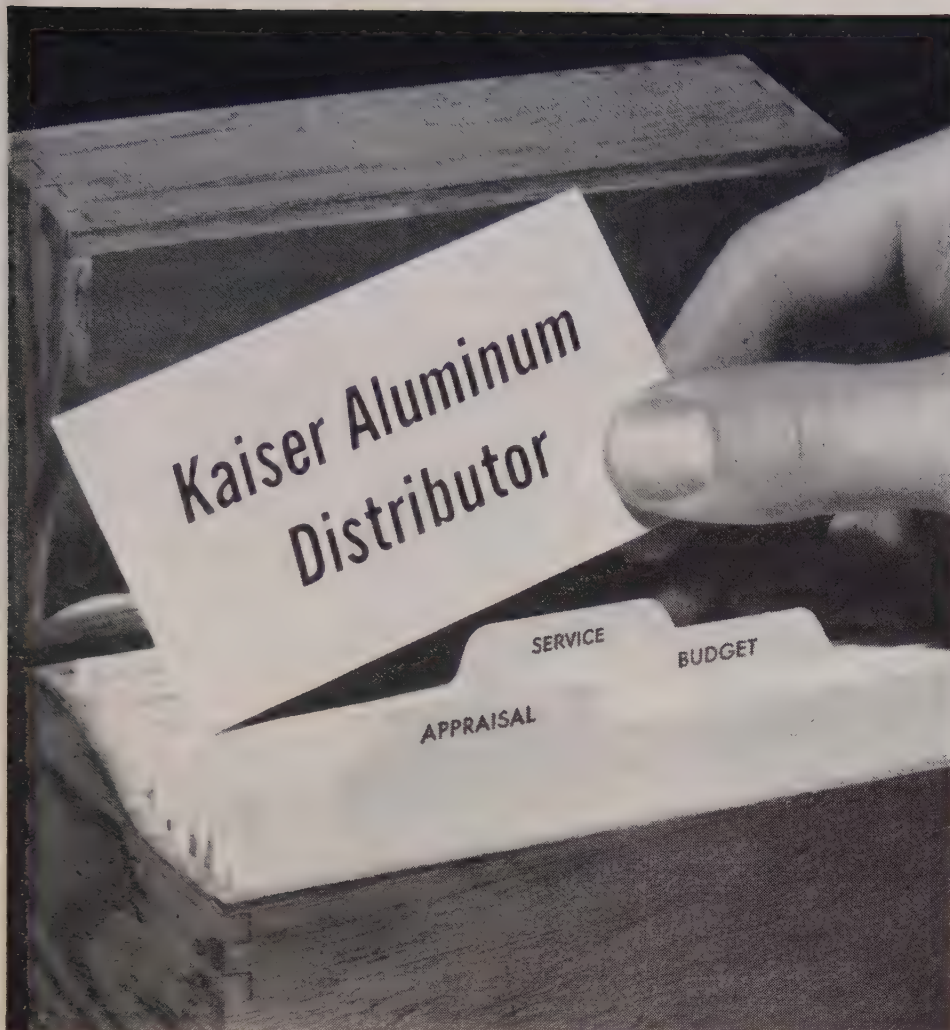
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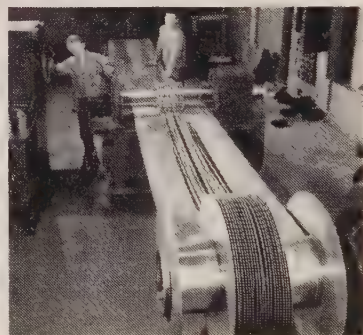
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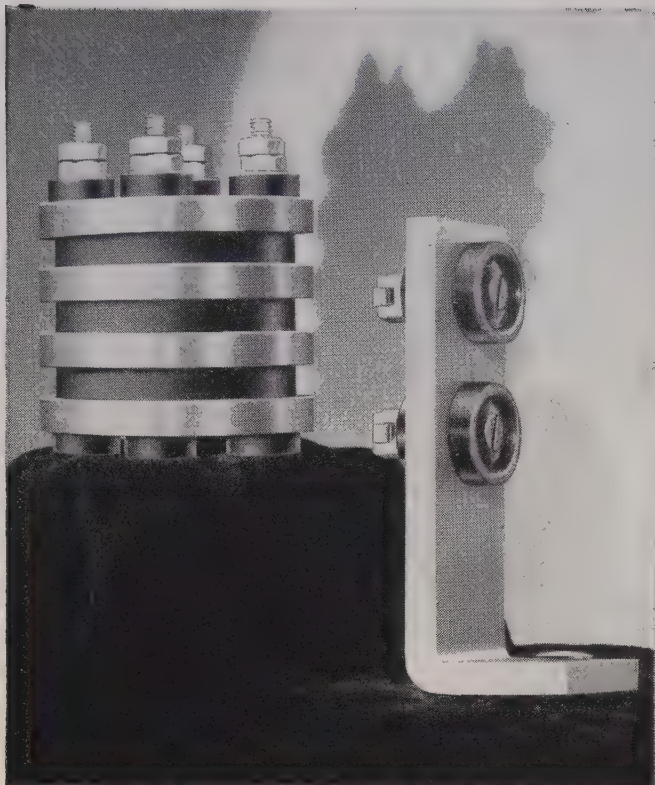
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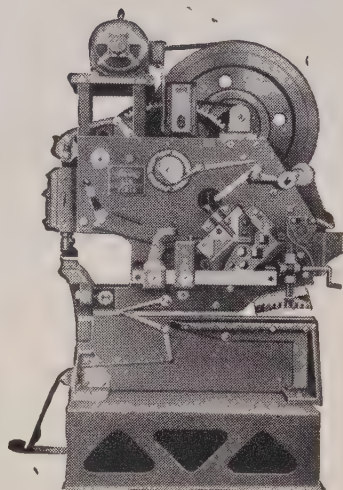
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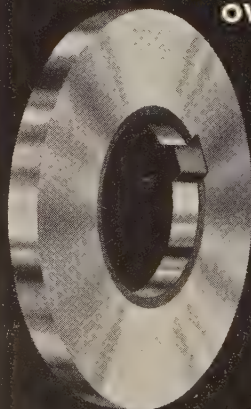
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grades can be substituted for hot-topped and quality grades. Substitution would increase yield, and assure users of more tonnage and faster delivery.

**Boston**—Slight improvement in cold-rolled carbon bar shipments includes larger sizes, three to four inch. Prospects for first quarter are slightly improved, although forge shops in several cases have not as yet been able to place more than 80 per cent of their allotments for the period.

**New York**—While sellers are opening books on hot-rolled alloys for second quarter, most producers will not take action on hot-rolled carbon bars until end of this month. Most cold drawn bar sellers opened their books on carbon as well as alloy bars some time ago.

**Philadelphia**—Most sizes of hot carbon bars remain scarce, especially large rounds for shell work and wide flats, four to six inches, required for railroad equipment. Producers of hot alloy bars have opened books for second quarter. Around the end of this month books will open for April on hot carbon grades.

## Pig Iron . . .

Pig Iron Prices, Page 164

**New York**—Blast furnace production set a new monthly record in October at 6,515,091 net tons, according to the American Iron & Steel Institute. The previous monthly record was 6,300,000 tons in March this year.

October output was 350,726 tons greater than that for September and was nearly 318,000 tons more than were produced in October, 1951.

Of total October output, 6,442,024 tons were pig iron and 73,067 tons ferromanganese and spiegeleisen.

Furnace operations in the month averaged 104.2 per cent of capacity, comparing with 102.1 per cent in September.

For the 10 months ended October total output of the nation's blast furnaces was 49,421,767 net tons, comparing with 59,344,068 in the corresponding period of 1951. The drop of approximately 10 million tons was due to loss of production during the steel strike in June and July.

Comparisons follow:

	Pig Iron (net tons)	Ferromanganese and Spiegel (net tons)	Total Blast Furnace Output (net tons)
1952			
September ..	6,095,865	68,500	6,164,365
October .....	6,442,024	73,067	6,515,091
10 mos. ....	48,936,964	484,803	49,421,767
1951			
September ..	5,827,269	62,833	5,890,102
October .....	6,132,051	65,125	6,197,176
10 mos. ....	58,731,813	612,255	59,344,068

**New York**—With foundry operations lagging and consumer inventories limited to 30 days, pig iron supply appears ample. More foreign offerings are noted, but prices, generally, are not competitive with the domestic market.

**Boston**—Heavier offerings of pig iron include basic grades and the supply position of consumers is much improved. Basic inventories are better balanced. Sales of foreign iron have dwindled.

**Buffalo**—Spirited demand for merchant pig iron is noted. Large tonnages are moving out of the area by vessel to upper lake ports as the 1952 navigation season nears a close.

**Philadelphia**—Pig iron demand and supply are in easy balance here. Pres-

sure for foundry iron is less than at any time this year. Operations at most jobbing foundries lag and business is dropping at the pipe foundries. Movement of southern iron in this district will be given a lift by reduction in all-rail freight from Birmingham. Effective Dec. 19, rate to Delaware river points as far south as Wilmington, Del., will be \$11.33 including federal tax, against the current rate of \$17.58.

**Pittsburgh**—Two new blast furnaces are about ready to add to iron availability in the Pittsburgh district. Pittsburgh Coke & Chemical's new stack is about ready to go into production and Crucible Steel Co. of America will light its new furnace at Midland before the first of the year.

**Cleveland**—Merchant iron sellers report they are under less pressure for shipments than for some months past. This, in part, is accounted for by the fact foundry operations continue to lag in some directions, and even some foundries on heavy defense work are not pressing for supplies like they were some time back. The foundry trade in this general area is encouraged by the projected building of another blast furnace here by the American Steel & Wire Division of U. S. Steel Co. It will be many months, however, before this stack is in operation, it still being in the engineering stage. It is understood a large part of the output of the new furnace will go to Ford's new foundry here.

**Chicago**—Pig iron is in the best demand-supply balance enjoyed in

months. There is no surplus, however, sellers finding consumers eager to accept all tonnage offered. The improved situation reflects good blast furnace output of merchant iron with jobbing foundry operations spotty.

**St. Louis**—Foundry iron production has been resumed here on one of Granite City Steel's two stacks. The changeover reflects comfortable basic iron inventories.

## Iron Ore . . .

Iron Ore Prices, Page 171

**Cleveland**—Although gales and freezing weather have slowed down shipping on the Great Lakes sharply, vessel operators are confident the 1952 iron ore shipment goal of 75 million tons will be achieved by the navigation season's close, which is in the offing.

Shipments from the head of the lakes up to Dec. 1 totaled 74,499,094 net tons, just 500,066 tons short of the season's goal, and there are enough downbound cargoes to assure hitting the target.

Shipments in the latest week for which data are available, that ended Dec. 1, were 980,759 gross tons, which was 1,084,439 tons under the movement of the preceding week, and 53,054 tons fewer than in the corresponding week of 1951. The November movement of 9,294,947 tons compared with 5,695,281 in the like month of last year.

Temporary increase of 10 cents per gross ton in ceiling rates for hauling iron ore from upper lake ports by 27 contract carriers was



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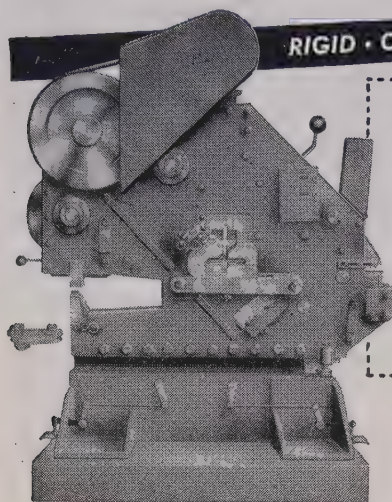
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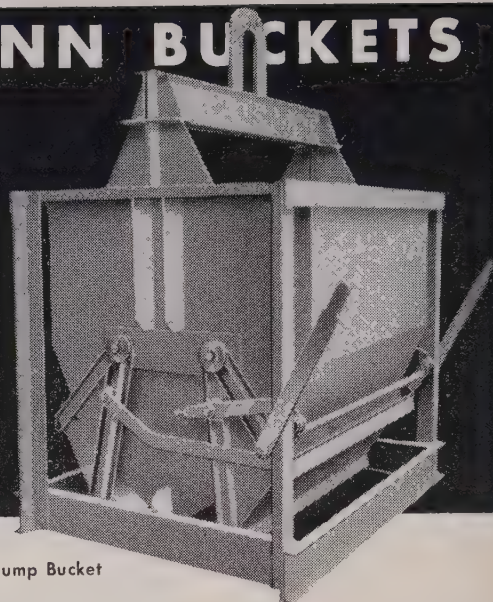
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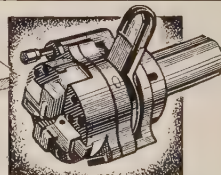
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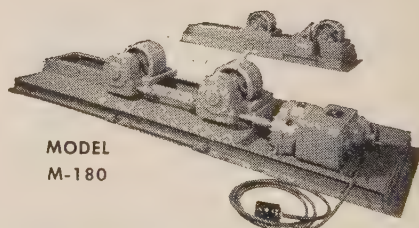
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granted by OPS last week. The increase is retroactive to July 26 and expires Dec. 31. The new rate is \$1.55. Most ceiling rates of the Great Lakes carriers have been based on contracts made in the fall and early winter of 1949.

## Metallurgical Coke . . .

Metallurgical Coke Prices, Page 169

**New York**—Oven foundry coke has been advanced \$1.25 at Kearney, N. J., to \$24 ovens, and similarly, at Swedeland, Pa., to \$23.85 ovens. Advances at Kearney are retroactive to Oct. 1 and at Swedeland to Sept. 29. Industrial coke has been advanced \$1 a ton at both points.

**Cleveland** — Oven foundry coke prices have been advanced \$1.50 per ton in line with action approved recently by the Office of Price Stabilization. Price at Painesville, O., ovens now is \$25.50 with the delivered Cleveland price \$27.43. Demand for coke is steady but the foundries are not pressing.

**Detroit**—The merchant foundry coke producer here last week raised prices \$1.50 per ton, bringing the Detroit oven price to \$25.50, effective Dec. 1. Delivered prices from Detroit are up similarly.

## Warehouse . . .

Warehouse Prices, Page 171

**Washington**—Distributors were ordered last week by the National Production Authority not to sell certain semifinished steel products except against authorized controlled materials orders. Explaining the move under schedule 4 to M-6A, NPA officials said the products affected have been distributed through some warehouses as conversion steel in transactions wherein buyers have not been required to produce CMP tickets, and in which the buyers did not charge the steel against their over-all allotments. Under the regulation no distributor is permitted to deliver any carbon or alloy ingots, billets, blooms, slabs, sheet bars, tube rounds, skelp, wire rods, or hot-rolled sheets in coils unless the delivery is made pursuant to an authorized controlled materials order.

**Boston**—Products in short supply, size and grade, are narrowing. Incoming volume on some products is in excess of warehouse shipments. Heavy carbon plates and bars are moved quickly.

**Philadelphia** — Distributors expect daily average volume to be off this month due to year-end influences. However, demand so far has been well sustained.

**Cleveland** — Warehouse operators expect some slackening in business this month because of the yearend holidays. In general, however, order volume, it is said, will stack up well with that of other years. Some improvement in supply conditions has been effected over recent weeks but stocks are highly unbalanced.

**Chicago**—Warehouses feel the reduction in receipts from mills with expiration Dec. 1 of the temporary 20 per cent boost in base period allotments effected at the end of the steel strike. Quotas now are back to 100 per cent.

**Seattle** — Warehouses report demand steady despite seasonal curtailment of outside building opera-

tions. Current purchases are confined to immediate needs.

## Scrap . . .

Scrap Prices, Page 172

**Cleveland**—Steelmaking grades of scrap are moving steadily to the mills at ceiling prices. Consequently, inventories are maintained at comfortable levels, 45 to 60 days, despite sustained steel production at capacity pace. Dealers' stocks are limited, some yards being virtually barren of material, especially quality grades. Turnings are moving sporadically at ceiling. The foundries also are taking in scrap but some cast grades continue soft pricewise, shading up to \$2 per ton under ceiling being reported.

**Detroit**—Resumption of buying of blast furnace grades by one large consumer here at ceiling brought that item back on the wanted list along with open-hearth and electric furnace grades.

**Boston** — Steel scrap inventories are maintained by steady shipments. Most consumers are taking deliveries at about the rate of consumption.

**Buffalo**—Brisk activity ruled the scrap market last week. Firmer tendencies prevail with dealers anticipating additional business at ceiling levels. Ford Motor plant here shipped about 12,000 tons of high quality scrap to Michigan. Cast scrap is easy.

**Philadelphia** — Open-hearth, blast furnace and low phos grades of scrap

continue in steady demand. Some district mills holding less than a month's supply, are anxious to build up winter inventories. Cast grades are moving sluggishly, No. 1 cupola cast showing further weakness at \$46 to \$49 delivered, and charging box cast being off to \$47 delivered. Weakness also is reflected in machinery cast although 200 tons were recently purchased at the \$52 ceiling.

**Pittsburgh** — No impressive shipments are being made to mills in the Pittsburgh area. But mill stocks are substantial. No effort so far, is being made to beat down prices. Most grades are moving at ceiling.

**Chicago**—Adequate consumer inventories of all grades of scrap are making the market insensitive to weather conditions. Delays in receipts under contract occasion no concern. This is in sharp contrast to a year ago when scrap drives were being pushed to support steel production. Ceiling prices hold for steelmaking material but are depressed for blast furnace and foundry grades.

**St. Louis**—Winter weather is slowing scrap shipments. Mills are taking in scrap on old orders, but no new large orders are being placed. Prices hold steady at ceiling. Cast market is slow and prices are soft. Unstripped motor blocks have dropped \$1 to \$37.

**San Francisco**—No. 2 heavy melting steel has dropped \$2 a ton to \$29, reflecting comfortable inventories and steady receipts. This is \$5 below ceiling.



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## Fasteners . . .

Bolt, Nut, Rivet Prices, Page 169

**Pittsburgh**—November shipments of bolts and nuts were about equal to those during October. Big problem of producers centers in the larger diameters.

**San Francisco**—Bolts and nuts are in surplus supply and are listed by the major producer here as among the few items "hard to sell." There ordinarily is a build-up inventory, however, on these items.

## Canada . . .

**Toronto, Ont.**—Production of iron and steel in Canada in the nine months ended Sept. 30 gained over the corresponding period of 1951. Output of steel ingots and castings totaled 2,793,581 net tons compared with 2,654,327. Pig iron production amounted to 2,003,379 tons against 1,884,135 in the 1951 period.

## STRUCTURAL SHAPES . . .

## STRUCTURAL STEEL PLACED

2800 tons, new plant, Meter Division, Westinghouse Electric Corp., Raleigh, N. C., to Bethlehem Steel Co.

1400 tons, Washington state Snohomish river bridge, to Union Steel Co., Los Angeles; Manson Construction & Engineering Co., Seattle, general contractor.

1300 tons, classified construction at Hanford Works, to Isaacson Iron Works, Seattle; Kaiser Engineering Corp., Oakland, Calif., general contractor.

730 tons, aircraft maintenance and hangar building, Cherry Point, N. C., to B. L. Montague Co., Sumter, S. C.; Henry C.

Beck Co., Atlanta, general contractor, 500 tons, mechanical development building, Hanford Works; L. H. Hoffman, Portland, Ore., low to Atomic Energy Commission, \$355,000 for completion; external steel structure contract previously awarded to Dix Steel Building Co., Spokane, Wash., \$162,000. 325 tons, warehouse, Hytron Electronics & Radio Corp., Newburyport, Mass., to A. O. Wilson Structural Co., Cambridge, Mass. 210 tons, Roosevelt Blvd. shopping center, Philadelphia, to Max Corchin & Sons, Philadelphia. 170 tons, school, Cranston, R. I., to A. O. Wilson Structural Co., Cambridge, Mass.; Gilbane Construction Co., Providence, R. I., general contractor.

## STRUCTURAL STEEL PENDING

3500 tons, bridge work, six different locations, state thruway, New York; bids closed Dec. 4; bridges will be built at or near Catskill, Rochester, Utica, Syracuse, Seneca and Genesee, respectively.

700 tons, Public School No. 2, Bronx, New York; bids closed Dec. 2.

700 tons, marine unloading facilities, Department of Sanitation, Queens, New York; bids closed Dec. 3.

520 tons, additional Hanford Works construction; bids to Kaiser Engineering Corp., Oakland, Calif., Dec. 8.

400 tons, warehouse, Bohack stores, Brooklyn, N. Y., Turner Construction Co., general contractor.

340 tons, truss bridge, Simsbury, Conn.; Jones Construction Co., Columbia, Conn., low, \$519,904.52.

200 tons, steel piling, state highway project—Vernon-Tolland, Conn.; M. A. Gammino Construction Co., Providence, R. I., low.

100 tons, building addition, including garage, Hartford Times, Hartford, Conn.

## REINFORCING BARS . . .

## REINFORCING BARS PLACED

350 tons, air field dormitories, Eielson Field,

Alaska, to Bethlehem Pacific Coast Steel Corp., Seattle; Kune-Johnson Co., Seattle, general contractor.

## REINFORCING BARS PENDING

1000 tons, eight buildings, dormitories, etc., Ault Air Field, Washington state; Sound Construction & Engineering Co., Seattle, low \$2,612,513 to 13th Naval District.

Unstated, Oregon state highway projects; seven concrete viaducts, Douglas county, awarded R. E. Mead, Grants Pass, \$165,084, two schedules; two viaducts, 197 and 100 feet, respectively, Douglas county, awarded R. & M. Construction Co., Central Point, \$74,998.

## PLATES . . .

## PLATES PENDING

4000 tons, classified construction at Hanford Works, Washington; placement in near future.

## RAILS, CARS . . .

## RAILROAD CARS PLACED

Lehigh & New England, 100 seventy-ton covered hopper cars, to Pullman-Standard Car Mfg. Co., Chicago.

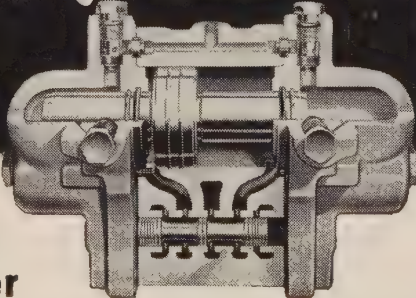
## RAILROAD CARS PENDING

Southern Pacific, 2000 freight cars, comprised mainly of gondolas and open and covered hopper cars, bids asked; these will be in addition to 6300 still to be delivered against old orders.

## RAILROAD MATERIALS PLACED

Alaska Railroad, 1725 tons, 115-lb rail to Colorado Fuel & Iron Corp., Minnequa, Colo.; also 150 tons spikes and bolts to Bethlehem Pacific Coast Steel Corp., Seattle; lesser awards for frogs, joints and miscellaneous to Nelson Iron Works, Seattle, American Nut & Bolt Co., Rail Joint Co. and American Brake Shoe Co.; contract for tie plates not awarded as buyer has sufficient in stock.

# Multiply Pressure



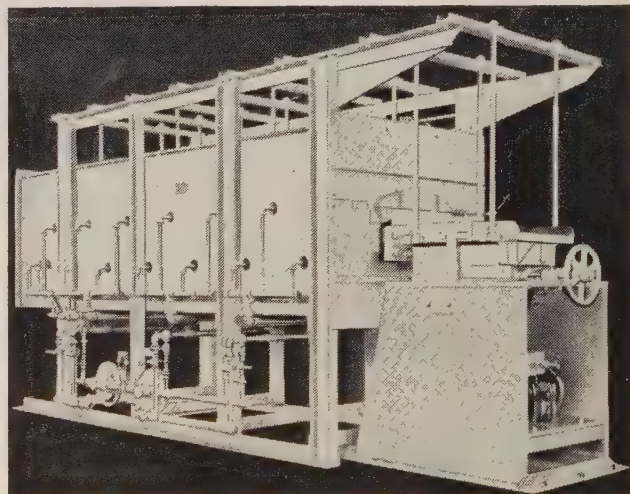
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This means lower first cost, less horsepower consumption, reduced cylinder sizes—a more compact over-all design. Pressure and volume delivered can be controlled by one of the built-in governors that are standard for all RACINE pumps.



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# Here and There in Metalworking . . .

CONSTRUCTION—ENTERPRISE—ORGANIZATIONAL CHANGES

## Seidelhuber Operates New Facility

Seidelhuber Steel Rolling Mill Corp., Seattle, began operating at the close of November its new rolling mill facility at 5280 W. Marginal Way, that city. The mill is on a two-shift basis and will be on a three-shift basis by the year's end. The plant is now completely integrated with a rated capacity of 60,000 tons. Current production of the rolling mill consists of 4 in. x 4 in. round-cornered carbon steel billets. As quickly as a raw material alloying inventory can be accumulated and special steel-conditioning equipment is installed, the company will direct its major emphasis to the production of alloy and stainless steels. Next step in the company's \$7 million plant construction program is the installation of additional roll stands to permit conversion of billets into merchant bar sizes. This is under way and will be completed early in 1953.

## Powerful Diesel Engine Developed

Fairbanks, Morse & Co., Chicago, is bringing out an addition to its locomotive line, which it describes as the world's most powerful single-engine diesel locomotive. The unit, called the "Train Master," is powered by a 2400-hp diesel and is designed as a universal locomotive to handle a wide variety of railroad jobs, from 80 miles per hour passenger runs to high tonnage freight hauls. First 10 units have been ordered by the Lackawanna, at a cost of about \$2.5 million. They are being built at Beloit, Wis., delivery starting early in 1953.

## Aluminum Ore Co. Plans Expansion

Aluminum Ore Co., Pittsburgh, has plans for a major addition to its alumina works in Bauxite, Ark., for the manufacture of finished chemical products. Preliminary estimates place the cost of erecting the addition in excess of \$5 million. Construction is contingent upon obtaining various government authorizations.

## Industrial Supply Firms Organized

A group of tool and industrial supply manufacturers established a distributing and warehousing organization to be known as Manufacturers Industrial Supply Corporations. Branch offices and warehouses will be located in principal industrial centers to serve manufacturing members. They will sell tools and industrial supplies, manufactured by their suppliers, only to established wholesale distribu-

tors. The first of these corporations, M.I.S. of Illinois, is in operation; M.I.S. of California and M.I.S. of New Jersey will be functioning by Feb. 1. Interested manufacturers and industrial supply houses are invited to communicate with Howard Learn, general manager of M.I.S., 5459 W. Division St., Chicago 51.

## Wire Manufacturer Appoints Agent

C. O. Jelliff Mfg. Corp., Southport, Conn., appointed J. J. Glenn & Co., Chicago, as its representative in that territory. The company manufactures resistance wire, specializing in the finer sizes and unusual specifications.

## Engine Parts Plant Nears Completion

Construction of jet aircraft engine parts plant at St. Catharines, Ont., is nearing completion with the first production activity scheduled to start this month. Some machinery and equipment has arrived and has been placed in the plant which is expected to be in complete operation early next year. The building has a floor area of 150,000 sq ft.

## Peoria Production Pool Gets Loan

Peoria Consolidated Manufacturers Inc., Peoria, Ill., a defense production pool composed of 26 small firms, was granted a loan of \$814,169 by Small Defense Plants Administration. The funds will provide working capital for the performance of a \$2,714,240 contract with the armed services to manufacture cartridge storage cases.

## Naval Inspection Offices Opened

Naval inspection offices were opened in three cities to handle increased defense production. Assistant inspector of naval material offices were activated at Poughkeepsie, N. Y., Waltham, Mass., and Daingerfield, Tex.

## Ford Plans \$32.5 Million Project

Ford Motor Co. of Canada Ltd. will spend \$32.5 million on expansion and transformation of its manufacturing facilities in Windsor, Ont. This expenditure will be exclusive of that at the Oakville plant, now under construction. The company plans to start engine assembly in the revamped Windsor plant by October, 1953, and should be in full operation early in 1954. Limited production will start next May on a pilot assembly line at the Oakville plant. Passenger car operations will be moved from

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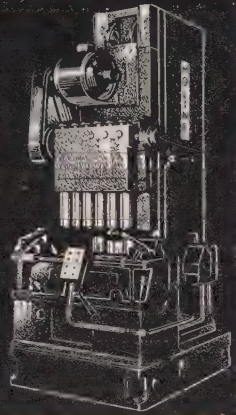
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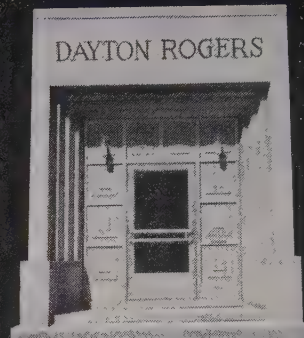
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Windsor to Oakville next summer; the truck assembly line, some time in 1954.

### Goodyear Expands Chemical Division

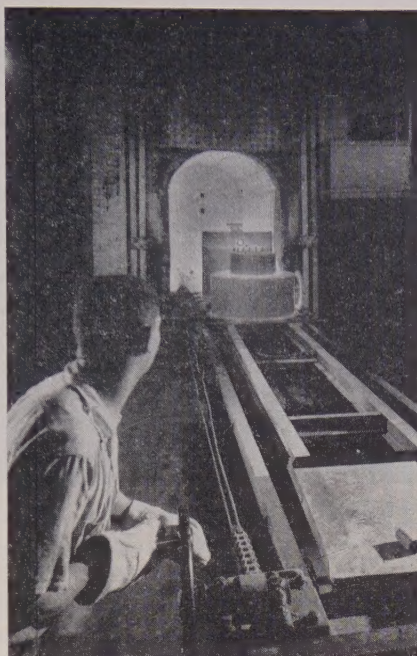
Goodyear Tire & Rubber Co., Akron, will expand its Chemical Division at a cost of \$1.5 million. The project consists of an addition to existing facilities in Akron for the production of synthetic rubber.

### Blaw-Knox Plans Consolidation

Stockholders of Blaw-Knox Co., Pittsburgh, will vote Dec. 15 upon a plan of corporate simplification, involving the merger of the company and its operating subsidiaries. The corporate name of Blaw-Knox Co. will be retained. At present, Blaw-Knox consists of four corporations, operating 11 business activities.

### Lewis-Shepard Names Representative

Lewis-Shepard Products Inc., Watertown, Mass., appointed Mussels Canada Ltd., 65 Colborne St., Montreal, Que., as its representative. Lewis-Shepard makes materials handling equipment.



### Steel—Hot from the Oven

A steel muffler for a Navy submarine glows after firing in a stationary oven at the Long Island City, N. Y., plant of Seaporcel Metals Inc. A porcelain enamel finish was bonded to the metal at a temperature of 1600° F. Steel forms the base of porcelain enameled products manufactured at Seaporcel Metals for architectural uses such as building facades and store fronts

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### Foxboro Co. Buys Dallas Property

New factory facilities for the assembly of control valves were acquired at Dallas by Foxboro Co., Foxboro, Mass., manufacturer of industrial instruments for process measurement and control. The new quarters are conveniently located to its branch office address, 1710 N. Akard St., Dallas.

### Chiksan Opens Milwaukee Branch

Chiksan Co., Brea, Calif., manufacturer of ball-bearing swivel joints, opened a branch sales office in Milwaukee. Bev Ragsdale is in charge of the new office which will be operated under the direct supervision and control of Chiksan's midwestern district sales office in Chicago.

### Eclipse Forms Subsidiary in Canada

Eclipse Fuel Engineering Co. of Canada Ltd., 705 Bloor St. W., Toronto, Ont., was organized to represent Eclipse Fuel Engineering Co., Rockford, Ill. The parent company makes high pressure steam boilers, vaporizers, heat treating furnaces and containers, metal melting furnaces, forges, gas burners, centrifugal air blowers, gas boosters, gas-air automatic proportional mixers, con-

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## Motorists Dodge as Bridge Takes to the Road

"Low bridge!" was the warning as a 136-foot section of pedestrian overpass left U. S. Steel Corp.'s Consolidated Western plant at Maywood, Calif., atop a truck and trailer. Bound for a busy freeway ten miles distant, the 22-ton load taxed 16 heavy truck wheels during its tortuous trip through metropolitan Los Angeles

trol valves and gas distribution equipment.

### Couse Mfg. Co. Gets Government Aid

Couse Mfg. Co., Newark, N. J., was granted a loan of \$1,275,000 by Small Defense Plants Administration, to be used mainly for purchase of new equipment and working capital. The company manufactures mobile machine and service shops and has a contract to produce such equipment for the Corps of Engineers.

### Muffler Firm Leases Warehouse Space

Powell Muffler Co. Inc., Utica, N. Y., leased more than 60,000 sq ft of floor space in a plant building in New York Mills, N. Y., and will take possession after the first of the year. The company plans to use the structure for warehouse purposes, moving from its present location at 315 Oriskany St., Utica.

### Blasting Contractor Opens Office

Chicago Concrete Breaking Co., blasting contractor, opened its new plant and offices at 12233 Avenue O, Chicago.

### Korhumel Buys Milwaukee Firm

Korhumel Steel & Aluminum Co., Evanston, Ill., purchased Federal Building Products Co., a wholesale distributor of building materials, 131 W. Seeboth St., Milwaukee. The property will be operated as a division of Korhumel under the name of Federal Building Products Corp.

### GE Still Expanding Westover Plant

General Electric Co.'s plant expansion at Westover, N.Y., is still in progress. Plant officials are planning new moves to open up more space to meet expanded production schedules. The firm never has oc-

cupied all of the space available in the former Remington Rand building. There is a total of 540,000 sq ft in the plant.

### Studebaker May Build in Canada

Studebaker Corp. of Canada Ltd. purchased an industrial expansion site of 190 acres between Toronto and Hamilton, Ont. Plans for development of the site have not been made but an official of the firm said it eventually will be used for expansion of manufacturing and warehousing facilities. Many Studebaker parts now imported from the United States will be made in Canada, when the expansion is completed.

### Parker Appliance Names Distributor

Parker Appliance Co., Cleveland, appointed Nielsen Hydraulic Equipment Inc., New York, as an authorized distributor for its industrial tube fittings and tube working tools.

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### Accounts Wanted

**INDIANA AND VICINITY** Manufacturers' Agent wants feature line—100% coverage guaranteed. Machinery, electronics and gaging background, age 41. W. M. Foster, Rainbow Bend, Mooresville, Indiana.

### ACCOUNTS OR DISTRIBUTORSHIPS

wanted by reputable new sales agency opening offices in Buffalo, N. Y. January 1st. Have well established contacts in this area with major consumers of carbon, alloy and stainless production steels, and non-ferrous metals. Address Box 618, STEEL, Penton Bldg., Cleveland 13, Ohio.

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**MECHANICAL ENGINEER, 37, graduate, 15 years staff and supervisory experience new construction and general plant engineering including plant layout, machine design and specifications; particularly seamless and welded tube mill equipment.** Desire position executive assistant or department head. Available six weeks after final negotiation. Responses held in strictest confidence. Reply to Box 611, STEEL, Penton Bldg., Cleveland 13, Ohio.

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Bought July 1945.

These are battery powered, air operated, rocker arm type welding machines, with a throat depth of 18".

The batteries are 12 cell Exide type M57 batteries of 660 amp. hour rate. The machines are rated at 25,000 amperes.

The maximum tip pressure at 80 lbs. psi line pressure is 1800 lbs. psi.

Equipped with 220 volt, 3 phase dry type Rectifiers.

The welders are equipped with electronic controls. Batteries not included.

1 only Progressive Welder.

Model 229E30B7, Serial No. 2519.

Bought March 1945.

This is a battery powered, rocker arm type welding machine with a throat depth of 36".

Progressive welder air operated DC Contactor, Weltronic Timer, Allen Unitor Rectifier.

This welder is operated by a 30 cell battery.

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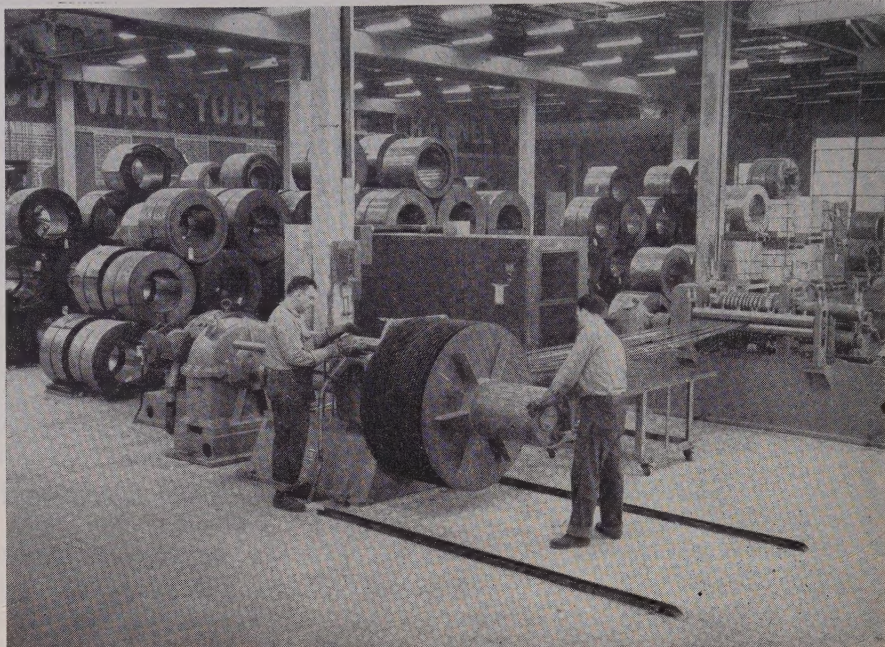
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## New Slitting Machine Handles Two-Mile Coil

At Eastern Brass & Copper Co. Inc.'s new Bronx, N. Y., plant, this 48-inch slitting machine works on its first order. Geared for extremely close tolerances, the new installation can handle a single coil of eight tons in weight, up to 48 inches in width and over two miles long, while making as many as 36 cuts in one operation. A combination of five motors totaling 127½ hp runs the machine

## Brampton Project Nears Completion

Union Metal Mfg. Co. of Canada Ltd., subsidiary of Union Metal Mfg. Co., Canton, O., expects to place its Brampton, Ont., plant into operation early in January. Initial production will consist of parking meters for the company's Dual Parking Meter Division, to be followed by production of switch boxes, meter enclosures and similar products of the company's Superior Switchboard & Devices Division. Subsequent production will also include Union Metal's tapered metal street and flood-lighting poles, foundation piles, and materials handling boxes, skids, pallets and combinations. V. J. Lajeunesse, Canton, is president of the Canadian firm; O. L. Beatty, Preston, Ont., general manager of the Canadian plant.

## Executive and Sales Offices Moved

Pacific States Steel Corp. and American Forge Co., both under the same management, moved their executive and sales offices from Oakland, Calif., to the site of the plants at Niles, Calif. Joseph E. Eastwood Jr. is president of both companies.

## Westinghouse Widens Service in West

Charles R. Long, Pacific Coast district lamp engineer for Westinghouse Electric Corp., transferred his headquarters from Los Angeles to 410 Bush St., San Francisco. Walter H. Thompson, district lamp manager, ap-

pointed Earl F. Larson as South Pacific Coast district lamp engineer with headquarters at 600 St. Paul Ave., Los Angeles.

## Hertner Appoints Representative

Hertner Electric Co., Cleveland, manufacturer of industrial-truck battery chargers and motor generators, appointed Russell F. Clark Co., Pittsburgh, as district representative.

## Border Tool & Die Ltd. Expanding

Border Tool & Die Ltd., Windsor, Ont., is erecting a plant which will provide facilities for higher production and the making of larger dies. Cost of the project is estimated at \$120,000.

## Weber Aircraft Opens Ohio Office

Weber Aircraft Corp., Huntington Park, Calif., opened an office in Dayton, O. The company manufactures ejection seats, fixed crew seats, passenger seats, galleys, wash basins and other interior equipment for aircraft.

## Kirkpatrick Heads Magnesium Group

James S. Kirkpatrick was elected president of Magnesium Association, New York. Mr. Kirkpatrick is director of research and development for Brooks & Perkins Inc., Detroit, producer of magnesium sheet and plate and magnesium fabricated assemblies. The association will hold an International Magnesium Exposition next spring in Washington.